THOMSON MULTI MEDIA

*Brandt* FERGUSON **NORDMENDE** SABA **TELEFUNKEN** **THOMSON**

VIDEO

**SERVICE MANUAL**
**DOCUMENTATION TECHNIQUE**
**TECHNISCHE DOKUMENTATION**
**DOCUMENTAZIONE TECNICA**
**DOCUMENTACION TECNICA**

# VIDEORECORDER
# R5000-T5000 HI-FI
## 2. VERSION

| THOMSON | TELEFUNKEN | NORDMENDE | SABA |
|---|---|---|---|
| VPH 6600 N | M 9560 SA | V 3450 SV | VR 6081 |
| VPH 6601 | M 9560 HIFI | | VR 6087/F |
| VPH 6680 | M 9571 HIFI | | VR 7081 |
| VPH 6697 SENSAR | M 9680 HIFI | | VR 8083H |
| VPH 6750 | T 8006 HIFI | | VR 8087 |
| VPH 6751 | | | |
| VPH 6780 | | | |
| VPH 6790 | | | |

**WARNING :** *Before servicing this set read the safety recommendations.*
**ATTENTION :** *Avant toute intervention sur cet appareil, lire les recommandations de sécurité.*
**ACHTUNG :** *Bei jedem Eingriff im Gerät, die Sicherheitsvorschriften beachten.*
**ATTENZIONE :** *Prima di intervenire sull'apparecchio, leggere le norme di sicurezza.*
**IMPORTANTE :** *Antes de cualquier intervención, leer las recomendaciones de seguridad.*

**Code : 350 435 10** - 0997 - 10,4M - R5000-T5000 HI-FI - Print ROSSEELS PRINTING : 01 53 01 11 11

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⚠ Indicates critical safety components, and identical components should be used for replacement. Only then can the operational safety be garanteed.

Le remplacement des éléments de sécurité (repérés avec le symbole ⚠ ) par des composants non homologués selon la Norme CEI 65 entraine la non-conformité de l'appareil. Dans ce cas, la responsabilité du fabricant n'est plus engagée.

Wenn Sicherheitsteile (mit dem Symbol ⚠ gekennzeichnet) durch nicht normengerechte Teile ersetzt werden, erlischt die Haftung des Herstellers.

La sostituzione degli elementi di sicurezza (marcati con il segno ⚠ ) con componenenti non omologati secondo la norma CEI 65 comporta la non conformitá dell'apparecchio. In tal caso è "esclusa la responsabilità " del costruttore.

La subtitución de elementos de seguridad (marcados con el simbolo ⚠ ) por componentes no homologados segun la norma CEI 65, provoca la no conformidad del aparato. En ese caso, el fabricante cesa de ser responsable.

⚠ Do not disconnect modules when they are energized!
Repairs on power supply section are to be carried out only with isolating transformer.

⚠ Ne pas retirer les modules lorsqu' ils sont sous tension.
N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch Mode) qu'au travers d'un transformateur d'isolement.

⚠ Module nicht bei eingeschaltetem Gerät entfernen !
Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

⚠ Non scollegare i moduli quando sono alimentati!
Intraprendere riparazioni sulla sezione alimentatore solo con trasformatore isolante.

⚠ No desconectar los módulos cuando están activados.
Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separación.

**THOMSON** MULTI MEDIA

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**V21002**

VIDEO

# SERVICE MANUAL
# DOCUMENTATION TECHNIQUE
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# VIDEORECORDER

# THOMSON

## VPH 6600

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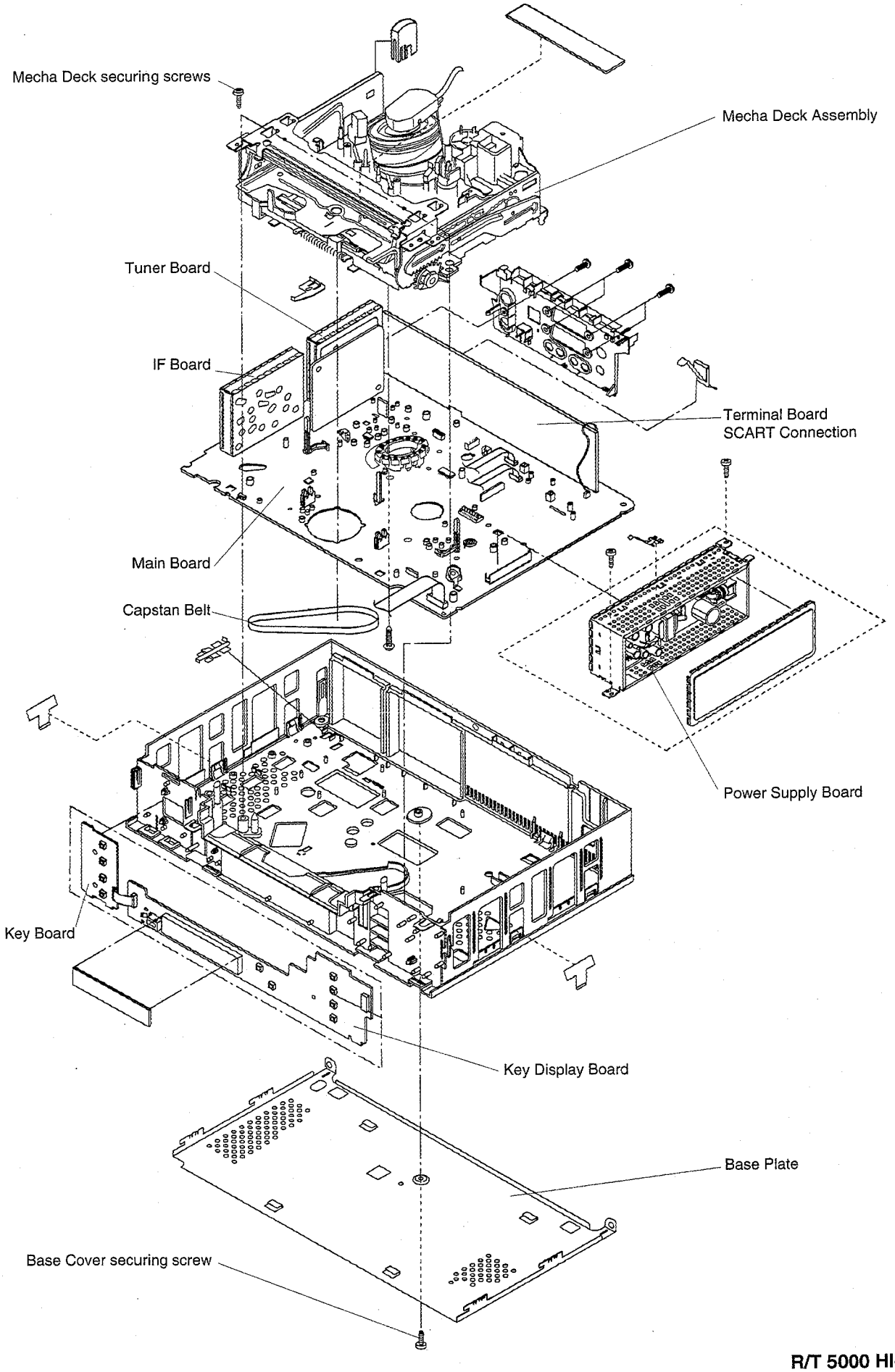
# VIDEO RECORDER OVERVIEW - LOCALISATION DES ELEMENTS - EXPLOSIONSZEICHNUNG DES GERÄTES - VISIONE DECOMPOSTA DELL'APPARECCHIO - VISTA AMPLIADA DEL CONJUNTO



# 1. Service Hinweise

## 1.1 Demontage des Gerätes

### 1.1.1 Gehäuse

a) 5 Schrauben an der Rückseite des Gehäuses herausdrehen.
b) Die zwei seitlichen Schrauben herausdrehen
c) Das Gehäuseoberteil leicht nach hinten ziehen und anheben.

### 1.1.2 Frontblende

a) 2 Schrauben an der Oberseite links und rechts vom Kassettenfach herausdrehen.
b) 2 Kunststoffzungen an der Oberseite anheben.
c) 2 Kunststoffzungen an der Unterkante der Frontblende anheben und die Frontblende abnehmen.
Anmerkung: Während des Wiedereinbaus der Frontblende, muß die Kassettenklappe hinter dem Hebel liegen, auf der rechten Seite des Kassettenschachtes (halten Sie die Kassettenklappe in horizontaler Lage beim Einfügen in die Frontblende).

### 1.1.3 Bedienteil - Platte (KDB)

a) Ziehen sie die Stecker BK14 und BK06 heraus.
b) 2 Rastnasen an der Oberkante der Bedienteil-Platte anheben und Platte nach vorne/oben herausheben.

### 1.1.4 Front-Anschlußplatte(nicht bei allen Geräten)

a) Lösen Sie 2 Verriegelungen am oberen Teil der Platte, ziehen Sie die Platte nach vorn/oben, um sie abzunehmen.

### 1.1.5 Bodenplatte

a) Eine Schraube aus der Bodenplatte entfernen.
b) Lösen Sie Verriegelung in der Mitte der Abschirmung (in der viereckigen Öffnung), drücken Sie die Abschirmung nach hinten, um sie frei zu machen.

### 1.1.6 Versorgungsteil

a) Entfernen Sie 2 Schrauben .
b) Ziehen Sie die komplette Stomversorgung heraus.

### 1.1.7 Hauptleiterplatte kpl. mit Laufwerk (Mecha Deck)

a) Die Schraube in der Mitte der Bodenplatte von unten entfernen.
b) Frontblende entfernen und die Steckverbindungen auf der Bedienteil-Platte lösen.
c) 2 Schrauben links und rechts (von oben) des Laufwerks herausdrehen.
d) Lösen Sie 4 Verriegelungen, dabei den hinteren Teil festhalten (Anschluß-Stecker Halterung).
e) Lösen Sie 2 Verriegelungen, die Hauptleiterplatte halten.
f) Machen Sie die Verriegelung hinter dem Gerät los.
g) Ziehen Sie die Gesamt-Einheit (Hauptleiterplatte und Laufwerk) heraus .

### 1.1.8 Kassettenschacht

Vorher Pkt. 1.1.7 durchführen.
a) 2 Schrauben links und rechts am Kassettenschacht lösen.
b) Den oberen Teil des Kassettenschachtes abheben.
c) Den Kassettenhalter bis zum vorderen Anschlag zurückziehen.
d) Heben Sie den Kassettenschacht auf der Seite der Trommel leicht an.
e) Machen Sie die weißen Hebel frei (links und rechts des Kassettenschachtes) und drücken Sie den Kassettenschacht zur Trommel bis die Führungsblöcke (an der hinteren Seite) aus den Führungsschienen kommen.
f) Ziehen Sie jetzt Sie den Kassettenschacht in der entgegengesetzten Richtung bis die Führungsblöcke (an der Vorderseite) ebenfalls aus den Führungsschienen kommen.

### 1.1.9 Hauptleiterplatte vom Laufwerk trennen

Vorher Pkt. 1.1.7 durchführen.
a) Steckverbindungen BT002 (am Lademotor), BV001 (Kopftrommel) und BN003 ( HIFI ) abziehen.
b) Eine, mit einem Pfeil markierte Schraube, von der Lötseite der Hauptplatine herausdrehen.
c) Antriebsriemen entfernen.
d) Leiterplatte entrasten (4 Clips) und abnehmen

# 1. Service Notes

## 1.1 Disassembly

### 1.1.1 Top cover

a) Remove 5 screws from the rear.
b) Pull the top cover slightly backwards and lift.

### 1.1.2 Front panel

a) Remove two screws on the front left and right side of the cassette housing.
b) Bend the 4 top hooks of the front panel upwards to disengage them from their chassis retainers.
c) Disengage two lower hooks of the front panel and pull the front panel forward and downward to remove.
d) Note: During reinstallation of the front panel, the cassette flap must be positioned behind the lever, on the right-hand side of the cassette holder (hold the flap in a horizontal position while engaging the front panel).

### 1.1.3 Key Display Board

a) Disconnect connectors BK14 and BK06.
b) Disengage 3 hooks on the upper edge of the KDB and remove the board in a forward and upward direction.

### 1.1.4 Front connection board ( not in all cases )

a) Release the two clips at the upper edge of the board and remove the board in a forward and upward direction.

### 1.1.5 Bottom cover

a) Take out one screw from the base.
b) Release the clip in the center of the bottom cover (in the square hole), push the cover to the back and lift it.

### 1.1.6 Power Supply assy.

a) Remove 2 screws.
b) Remove the Power Supply Assy.

### 1.1.7 Main board assy. with Mecha Deck

a) Remove the centre screw from the base.
b) Remove the front panel and disconnect the cable connections on the key display board.
c) Remove 2 screws on the left and right of the Mechadeck.
d) Release the 4 clips holding the rear section (socket support).
e) Release the 2 clips holding the main deck.
f) Release the clip at the rear left of the device.
g) Remove the Mecha Deck with the main board upwards.

### 1.1.8 Cassette housing

Before doing this step please do step 1.1.7.
a) Take out two screws at the left and the right side of the upper part of the cassette holder.
b) Remove the upper part of the cassette holder
c) Pull the remaining part to the upper end position.(Eject)
d) Lift the cassette holder at the side, which shows to the drum. Release the white levers (left and right of the cassette holder) and push the cassette holder towards the drum until the guide pins at the rear side come out of the guide rails.
f) Now pull the cassette holder in the opposite direction until the guide pins at the front side also come out of the guide rails.

### 1.1.9 Separate Main board from Mecha Deck

Before doing this step please do step 1.1.7.
a) Disconnect the cable connection BT002 (function control motor), BV001 (drum motor) and BN003 (HIFI).
b) Take off one screw marked with an arrow from the solder side of the main board.
c) Remove the capstan belt.
d) Release the 4 clips and remove the main board.

## 1.2 Exchange of the drum unit

Note:
To exchange the upper part of the drum unit, refer to the service manual :

**«Drum Disassembly / Assembly «**

## 1.2 Austausch der Kopftrommeleinheit

Anmerkung:
Um den oberen Teil der Trommel auszuwechseln, beziehen Sie sich bitte auf das Handbuch:

**«Mechanische Einstellungen R4000»**

## 1.3 Service Einstellungen

### 1.3.1 Einrichten der Bedienteil-Software

Es ist notwendig den KDB-Prozessor über die bestehende Hardware-Konfiguration zu informieren. Dies wird bereits ab Werk konfiguriert und in den EEPROM abgelegt.

1. Videorecorder vom Netz trennen.
2. Tasten "-" und "+" an der Frontseite gedrückt halten und dabei den Recorder am Netz anschließen.

Für Gerät mit 18 Ziffern:
Auf dem TV-Schirm werden 18 Ziffern angezeigt, die den aktuellen Zustand des Gerätes anzeigen.
Im Display erscheint "SETUP".
In diesem SERVICE EINSTELLUNGS-Modus können gewisse Werte in Funktion spezifischer Charakteristika eingegeben werden. Die 18 Ziffern, die Ihrem Gerät entsprechen finden Sie auf Seite 9. Die jeweils einzustellende Ziffer blinkt auf dem Bildschirm. Die Eingaben werden mit den Zifferntasten auf der Fernbedienung durchgeführt. Nachdem alle 18 Ziffern eingegeben wurden, blinkt die erste Ziffer wieder.
Um die neuen Einstellungen abzuspeichern, drücken Sie bitte die STOP Taste. Sie können den Service Mode auch verlassen, ohne abzuspeichern. Dazu drücken Sie bitte die EXIT Taste auf der Fernbedienung.
Wenn Sie die neuen Werte abgespeichert haben, dauert es einige Sekunden, bis diese in das EEPROM geschrieben sind. Während dieser Zeit bleibt das Display dunkel.

Für Gerät mit 14 Ziffern:
Auf dem TV-Schirm werden 14 Ziffern angezeigt, welche die aktuellen Voreinstellungen angeben.
Die Tasten1, 3, 4, 5, 6, 7, 8, 9, 0 drücken, um den Service-Datenwert von 0 zu F zu erhöhen, und 2 drücken, um zur nächsten Nummer überzugehen.
In diesem Service-Einrichtungsmodus können einige dem Videorecordertyp entsprechende Einstellungen vorgenommen werden. Die Ihrem Gerät entsprechende Nummer aus 14 Ziffern finden Sie in der Tabelle auf Seite 3. Die jeweils einzustellende Ziffer blinkt auf dem Bildschirm. Die Eingabe erfolgt mit den Tasten der Fenbedienung. Nachdem alle 14 Ziffern eigegeben wurden, blinkt wieder die erste Ziffer. Zum Abspeichern der neuen Einstellungen drücken Sie die Taste „STOP" der Fernbedienung. Sie können den Service-Modus auch ohne Abspeichern verlassen. Zu diesem Zweck drücken Sie die Taste „E" oder „OFF" der Fernbedienung.
Wenn Sie die neuen Werte abgespeichert haben, dauert es einige Sekunden, bis diese in das EEPROM geschrieben sind. Während dieser Zeit bleibt die Anzeige dunkel.

Die Taste "Schneller Vorlauf (>>)" dient zur Auswahl der zweiten Seite des Service Modes. Diese Seite enthält die Funktion «Auto Diagnose». Sie finden mehr Details im Paragraph 1.4.

Hinweis:
Nach der Änderung der Einstellungen im Service Mode ist es erforderlich, den Kopftrommel - Umschaltpunkt neu zu setzen.

### 1.3.2 Kopf-Trommel-Umschaltpunkt

Legen Sie eine schreibgeschützte Meßkasette in das Videogerät. Die Wiedergabe startet automatisch. Wenn «START. E ---» angezeigt wird, drücken Sie die «STATUS»Taste auf der Fernbedienung. Drücken Sie gleichzeitig die Tasten «+»,«-» danach «PLAY ▶ » auf der Frontseite (Halten Sie die drei Tasten fest). Es wird "EINST." angezeigt. Das Videogerät bleibt im Wiedergabebetrieb. Beenden Sie nach eingen Sekunden diese Einstellung durch Drücken von «PLAY ▶ » auf der Frontseite. (Sehen Sie unter § 2.2.4 betr. der elektrischen Einstellungen nach)

## 1.3 Service Adjustments

### 1.3.1 KDB Software Set-Up for R5000

It is necessary to inform the KDB processor which hardware configuration is present. This is done in the factory and the selections stored in the EEPROM.
1. Disconnect the VTR from the mains.
2. Hold keys « - » and « +» pressed and connect the VTR to the mains. (For VCR without these keys, use « STOP », « PLAY » and « STANDBY » keys instead). And release « - » and « + » keys.

For models with 18 digits:
On the TV screen 18 digits are shown, representing the actual Setup values.
The display shows «SETUP».
In this SERVICE SET UP mode, some VTR-TYPE specific settings can be done. The number of 18 digits corresponding to your set is given at the page 9. The actual digit for the input is flashing on the screen. The inputs are done by the numeric keys on the remote control. After the input of all 18 digits, the first digit is flashing again. Store the new settings by pressing the STOP key on the remote control. You can also leave the SERVICE SET UP mode without storing the new settings. To do so, please press the EXIT key on the remote control.
If you have decided to store the new settings, it takes some seconds to initialise the EEPROM. During this time the display remains dark.

For models with 14 digits:
On the On Screen Display (OSD) 14 digits are shown, representing the actual Setup values.
Press 1,3,4,5,6,7,8,9,0 to increase service data value from 0 to F and press 2 to go to next number.
In this SERVICE SET UP mode, some VTR-TYPE specific settings can be done. The number of 14 digits corresponding to your set is given in the page 3 table. The actual digit for the input is flashing on the screen. The inputs are done by the keys on the remote control. After the input of all 14 digits, the first digit is flashing again. Store the new settings by pressing the STOP key on the remote control. You can also leave the SERVICE SET UP mode without storing the new settings. To do so, please press the « E » or « OFF » key on the remote control.
If you have decided to store the new settings, it takes some seconds to initialise the EEPROM. During this time the display remains dark.

The key «FAST FORWARD» is used to switch over to the second page of the Service Mode. This page introduces the Auto Diagnostic function. You will find more details of this in Paragraph 1.4.

Important note:
After the modification of the settings in the Service mode, a new adjustment of the HEAD SWITCHING POINT is necessary.

### 1.3.2 Head switching point

Insert a protected adjustment test cassette into the video recorder. Playback is set automatically. When the display shows PLAY E— press the key "STATUS" on the remote control. After that, press «+», «-» keys and «PLAY»key on the front panel (Hold all three keys pressed).The display indicates ADJ. The VCR will stay in PLAY mode. After a few seconds, stop the adjustment by pressing «PLAY» key on the front panel.
(see point. 2.2.4 of the electrical adjustments)

### 1.3.3 Sprachumschaltung

Taste "STATUS" der Fernbedienung gedrückt halten, bis die gewünschte Sprache im Display und auf dem Bildschirm erscheint.

### 1.4 Auto-Diagnose

Wenn ein mechanischer Fehler auftritt oder nach einem Bedienungsfehler, wird eine Zahl von 10 Ziffern, welche die Fehlfunktion darstellt, im EEPROM gespeichert.
Die angezeigte Zahl auf dem Schirm kann durch Vergleich mit der Tabelle auf S.6 hilfreich sein, das aufgetretene Problem zu lösen.

### 1.4.1 Anzeige einer Fehlermeldung

Die Fehlermeldung kann auf 2 Arten erfolgen:

a) Wenn die Seite «SERVICE EINSTELLUNGEN» auf dem Schirm ist, drücken Sie «<< Schneller Vorlauf «>>» auf der Fernbedienung.

b) Im **STOP oder STANDBY Modus**, wenn keine Anzeige auf dem Schirm ist, drücken Sie mindestens 10 Sekunden auf LÖSCHEN.

### 1.4.2 Interpretation der Fehlermeldung

Die Bedeutung der verschiedenen Ziffern, welche die Fehlermeldung darstellen, wird in nachstehender Tabelle angegeben.

### 1.3.3 Language selection

Keep the STATUS key pressed down, to choose the language of the menus on the display and on the TV screen.

### 1.4 Auto Diagnostic

When a mechanical problem or operating error occurs, a 10-digit number representing the malfunction is stored in the EEPROM memory.
This number is displayed on the screen and, when analysed, assists in finding a solution to the problem.

### 1.4.1 Error Message Display

The error message can be displayed in two ways:

a) When the «SERVICE SETUP» page is displayed on the screen, press the FAST FORWARD key «>>» of the remote control.

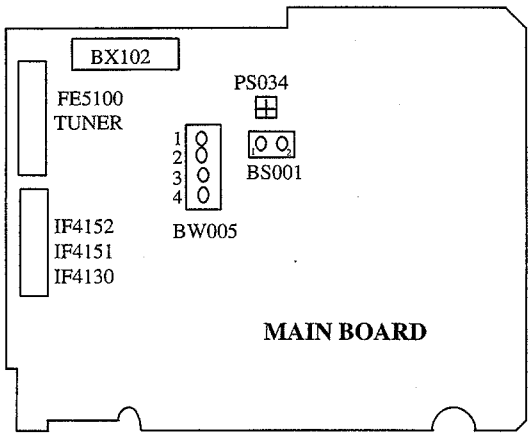
b) In **STOP or STANDBY modes**, when there is no display on the television screen, press the ERASE key, holding for at least 10 seconds.

### 1.4.2 Interpretation of Error Message

The meaning of the various error message digits is given in the table below.

| Number of digit | Meaning | Value |
|---|---|---|
| 1 and 2 | Target mechadeck and current mechadeck positions | 1 - Wind<br>2 - Stop<br>3 - Standby<br>3 - Play<br>4 - Rev<br>5 - Loading / Unloading<br>6 - Off<br>7 - Eject<br>F - Initial |
| 3 and 4 | Task servo is performing | 00 - Stop<br>01 - FRew<br>02 - FF<br>04 - Play<br>11 - Rev<br>12 - Cue<br>44 - Record<br>84 - Still<br>C4 - Rec Pause<br>40 - Rec / Rec P<br>10 - Search mode |
| 5,6 and 7,8 | Task active prior to abnormal off<br>Normal<br>Record<br>Step<br>Off<br>Eject<br>Stop<br>Capbrake<br>Initial<br>Endless Record<br>Endless Play<br>Continuous<br>Wind<br>Search<br>Still<br>Play | bit 0<br>0 0 0 0<br>0 0 0 1<br>0 0 0 4<br>0 0 0 8<br>0 0 1 0<br>0 0 2 0<br>0 0 4 0<br>0 0 8 0<br>0 2 0 0<br>0 4 0 0<br>0 8 0 0<br>1 0 0 0<br>2 0 0 0<br>4 0 0 0<br>8 0 0 0 |
| 9 and 10 | Abnormal flags | 81 - Drum<br>82 - Left Reel<br>84 - Right Reel<br>88 - Task incomplete |

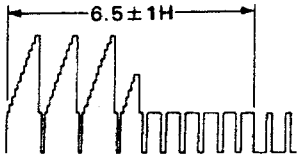
# 2. ELECTRICAL ADJUSTMENTS - ELEKTRISCHE EINSTELLUNGEN




## 2.2. Measurements Servo Part - Main board
## Messungen Servoteil - Hauptleiterplatte

Note: low level < 0.8V; high level > 4.0V

Anmerkung: L-Pegel < 0,8 Volt; H-Pegel > 4,0 Volt

| N° | Item<br>Einstellung | Mode & signal<br>Betriebs-art | Test equipment Input signal<br>Meßmittel Eingangssignal | Test point<br>Meßpunkt | Adjustment Point<br>Einstell-Punkt | Description<br>Beschreibung |
|---|---|---|---|---|---|---|
| 2.2.1 | Oscillator frequency | E.E. | Frequency counter | IT001 (pin 63) | PT001 | Adjust for 4 MHz ± 40 Hz |
| | Oszillator Frequenz | E.E. | Frequenz-zähler | IT001 (pin 63) | PT001 | 4 MHz ± 40 Hz einstellen |
| 2.2.2 | Drum FF (A / V SWP) | REC/PB | Oscilloscope | BW005 / 3 | None | Confirm 25 Hz signal |
| | Kopftrommel-Flip-Flop | REC/PB | Oszilloskop | BW005 / 3 | Kein Abgleich | 25 Hz Signal überprüfen |
| 2.2.3 | Capstan FG frequency | PB / REC (SP) | Frequency counter | IT001 (pin 44) | None | Confirm 757 Hz ± 10 Hz |
| | Capstan FG Frequenz | PB / REC (SP) | Frequenz-zähler | IT001 (pin 44) | Kein Abgleich | 757 Hz ± 10 Hz überprüfen |
| 2.2.4 | Head switching point | PB | Dual trace Oscilloscope Trigger ext. BW005/3 (Drum FF) | SCART AV1 (pin 19) | Adjustment by software setup | 1. Insert alignment test cassette.<br>2. When the display shows «PLAY E----» press the STATUS key on remote control.<br>3. Press «+» , «-» and «PLAY».<br>4. Display shows «ADJ».<br>5. Confirm that head switching point is 6.5 H ± 1H before vert. synchro.<br>6. Stop the adjustment by pressing Play key on the front panel.<br>  |
| | Kopf-Trommel-Umschaltpunkt | PB | Zweistrahl-Oszilloskop; Externer Triggerpkt. BW005/3 (Drum FF) | SCART AV1 (pin 19) | Software-Einstellung | 1. Geschützte Meßkassette einlegen<br>2. Taste "STATUS" auf Fernbedienung drücken, sobald Display "PLAY E---" anzeigt.<br>3. Tasten "+" und "-" gedrückt halten und zusätzlich Taste "PLAY ▶ " drücken.<br>4. Display zeigt "ADJ".<br>5. Prüfen, ob Kopfumschaltpunkt 6,5 H ±1 H vor dem Vertikal-Synchronimpuls liegt.<br>6. Beenden Sie die Einstellung durch Drücken der Taste "PLAY ▶ " des Videorecorders. |

## 2.3. Video signal processing (Main board)
## Video signalteil (Hauptleiterplatte)

| N° | Item<br>Einstellung | Mode & signal<br>Betriebs-art | Test equipment Input signal<br>Meßmittel Eingangssignal | Test point<br>Meßpunkt | Adjustment Point<br>Einstell-Punkt | Description<br>Beschreibung |
|---|---|---|---|---|---|---|
| 2.3.1 | EE Level<br>E-E - Pegel | EE Colour bar 1Vpp (AV1 pin20)<br>E-E Farb-balken, (AV1 pin20) | Oscilloscope<br>Oszilloskop | AV1 pin 19 (without load)<br>Anschluß 19 von AV1 ohne Scartstecker | None<br>Kein Abgleich | Check for 2.0Vpp±0.1Vpp<br> <br>2.0 Vss ±0,1 Vss messen |
| 2.3..2 | FM REC level<br>FM-Aufnahme-Pegel | REC without signal<br>REC ohne Signal | Oscilloscope<br>Oszilloskop | TV200 (emitter)<br>TV200 (Emitter) | None<br>Kein Abgleich | Check for 800mVpp<br>800 mVss überprüfen |
| 2.3.3 | PAL chroma REC level<br>PAL Farbaufnahme-Pegel | REC PAL colour bar 1Vpp AV1 pin20<br>REC PAL Farb-balken 1Vpp AV1 pin20 | Oscilloscope<br>Oszilloskop | IV001 (pin 38)<br>IV001 (pin 38) | None<br>Kein Abgleich | Check for 200mVpp±10% burst amplitude<br>200 mVss ±10 % Burstamplitude überprüfen |
| 2.3.4 (Not for all sets)<br>Nur für Multi-standard-geräte | SECAM Anti Bell filter (1.0715 MHz)<br>Anti Bell Filter SECAM (1.0715 MHz) | REC SECAM colour bar 1Vpp AV1 pin20<br>REC SECAM Farb-balken 1Vpp AV1 pin20 | Oscilloscope<br>Oszilloskop | IC100 (pin 28)<br>IC100 (pin 28) | PC103<br>PC103 | Adjust such that the magenta bar in R-Y and B-Y have the same amplitude<br>So einstellen, dass die Magentabalken in R-Y und B-Y dieselbe Amplitude haben |
| 2.3.5 (Not for all sets)<br>Nur für Multi-standard-geräte | SECAM Bell filter (4.286 MHz)<br>Bell Filter SECAM (4.286 MHz) | REC SECAM coul. 1Vpp (AV1 pin20)<br>Farb-balken 1V ss an AV1 pin 20 | Oscilloscope<br>Oszilloskop coul. 1Vpp | IC100 (pin 26)<br>IC100 (br 26) | PC104<br>PC104 | Adjust such that the magenta bar in R-Y and B-Y have the same amplitude<br>So einstellen, daß die Magentabalken in R-Y und B-Y dieselbe Amplitude haben |
| 2.3.6 (Not for all sets)<br>Nur für Multi-standard-geräte | SECAM chroma REC level<br>SECAM Farbaufnahme-Pegel | REC SECAM colour bar 1Vpp AV1 pin20<br>REC SECAM Farb-balken 1V ss AV1 pin20 | Oscilloscope<br>Oszilloskop | IC100 (pin 28)<br>IC100 (pin 28) | None<br>Kein Abgleich | Check for 100mVpp±10% magenta bar amplitude<br>Magenta Farbbalken auf eine Amplitude von 100 mVss ±10 % überprüfen |

## 2.4. On screen display (Main board)
## OSD - Hauptleiterplatte

| N° | Item<br>Einstellung | Mode & signal<br>Betriebs-art | Test equipment Input signal<br>Meßmittel Eingangssignal | Test point<br>Meßpunkt | Adjustment Point<br>Einstell-Punkt | Description<br>Beschreibung |
|---|---|---|---|---|---|---|
| 2.4.1 | OSD chroma oscillator<br><br>OSD Chroma-Oscillator | | Frequency counter<br><br>Frequenzzähler | Via 4k7 to IT001 (pin78)<br><br>pin78 IT001 über 4k7 | None<br><br>Kein Abgleich | Confirm 17.734475MHz±500Hz<br><br>Überprüfen der 17,734475 MHz ± 500 Hz . |

## 2.5. Audio signal processing (Main board) - Audio Signalverarbeitung-Hauptleiterplatte

| N° | Item<br>Einstellung | Mode & signal<br>Betriebs-art | Test equipment Input signal<br>Meßmittel Eingangssignal | Test point<br>Meßpunkt | Adjustment Point<br>Einstell-Punkt | Description<br>Beschreibung |
|---|---|---|---|---|---|---|
| 2.5.1 | Bias oscillator frequency<br><br>Löschoszillator Frequenz | REC (without signal)<br><br>REC (ohne Signal) | frequency counter (high impedance probe)<br><br>Frequenzzähler über 10:1 Tastkopf | BS031 / 1<br><br>BS031 / 1 | None<br><br>Kein Abgleich | Check for 70 kHz ±7 kHz<br><br>Prüfen, f = 70 kHz ±7 kHz |
| 2.5.2 | Bias level adjustment<br><br>Vormagne-tisierungs-Einstellung | REC (without signal)<br><br>REC (ohne Signal) | Oscilloscope<br><br>Millivoltmeter<br><br>Oszilloskop<br><br>Milli-Voltmeter | BS031 / 3<br><br>BS001 1-2<br><br>BS031 / 3<br><br>BS001 1-2 | PS034<br><br>PS034 | Adjust for V = 70Vpp ±10V<br><br>other way<br>Adjust for V = 3mV ± 0.1mV<br><br>Auf V = 70Vss ±10V einstellen<br><br>andere Methode<br>Auf V = 3mV ± 0,1mV einstellen |

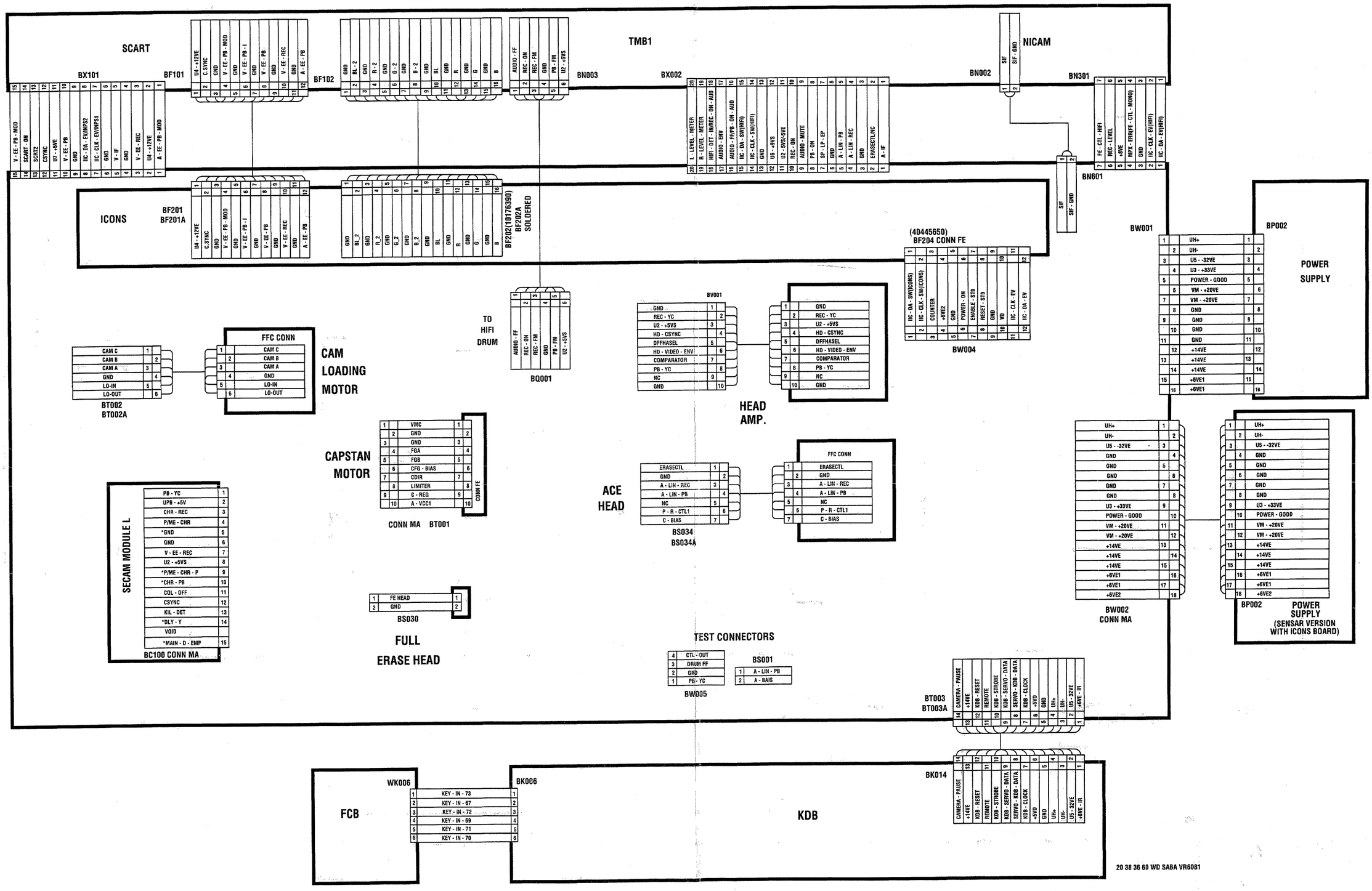
# SERVICE SETUP VALUES - VALEURS DU SETUP (MODE SERVICE) - SERVICE MODE EINSTELLUNGEN - VALORI SERVICE SETUP - VALORES DE CONFIGURACION DEL MODO SERVICIO

| MODEL | SERVICE SETUP VALUE | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| VPH 6600 N | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 9 | 6 | 0 | 0 | 9 | 1 | 1 | 2 | 4 | 1 | 4 |
| VPH 6601 | 5 | 1 | 0 | 8 | 2 | 2 | 2 | 3 | 2 | 3 | 0 | 3 | 0 | 3 | 2 | 4 | 1 | 0 |
| VPH 6680 | 0 | 0 | 0 | 2 | 5 | 0 | 3 | 1 | 6 | 7 | 1 | 5 | 1 | 1 | 2 | 4 | 1 | 5 |
| VPH 6697SENSAR | 7 | 2 | 0 | 9 | 1 | 1 | 3 | 1 | 2 | 7 | 0 | 7 | 1 | 1 | 3 | 4 | 1 | 0 |
| VPH 6750 | 0 | 1 | 1 | 0 | 9 | E | 4 | C | 3 | 0 | 9 | 9 | 8 | A | | | | |
| VPH 6751 | 0 | 1 | 0 | 8 | 2 | 2 | 1 | 9 | 2 | 4 | 0 | 1 | 1 | 1 | 3 | 5 | 1 | 0 |
| VPH 6780 | 0 | 0 | 0 | 2 | 5 | 0 | 3 | 1 | 6 | 7 | 1 | 5 | 1 | 1 | 3 | 5 | 1 | 5 |
| VPH 6790 | 0 | 0 | 0 | 3 | 5 | 0 | 3 | 1 | 6 | 7 | 0 | 7 | 1 | 1 | 7 | 5 | 1 | 5 |
| T 8006 HIFI | 5 | 1 | 0 | 8 | 1 | 2 | 1 | 9 | 2 | 0 | 0 | 1 | 0 | 9 | 0 | 4 | 0 | 0 |
| M 9560 HIFI | 4 | 1 | 0 | 8 | 2 | 2 | 1 | 9 | 2 | 0 | 0 | 9 | 0 | 3 | 2 | 4 | 1 | 0 |
| M 9560 SA | 4 | 2 | 0 | 9 | 2 | 1 | 2 | 3 | 2 | 3 | 0 | 3 | 0 | 3 | 2 | 4 | 1 | 0 |
| M 9571 HIFI | 4 | 1 | 0 | 2 | 2 | 2 | 3 | 1 | 6 | 7 | 1 | 5 | 0 | 3 | 7 | 6 | 1 | 0 |
| M 9680 HIFI | 4 | 0 | 0 | 2 | 2 | 2 | 3 | 1 | 6 | 7 | 1 | 5 | 1 | 1 | 2 | 4 | 1 | 5 |
| V 3450 SV | 5 | 1 | 0 | 8 | 2 | 2 | 2 | 3 | 2 | 3 | 0 | 1 | 0 | 3 | 2 | 4 | 1 | 0 |
| VR 6081 | 5 | 1 | 0 | 8 | 2 | 2 | 1 | 9 | 2 | 0 | 0 | 1 | 0 | 3 | 2 | 4 | 0 | 3 |
| VR 6087 / F | 5 | 0 | 0 | 1 | 2 | 0 | 2 | 3 | 6 | 3 | 0 | 1 | 0 | 3 | 2 | 4 | 0 | 3 |
| VR 7081 | 5 | 1 | 0 | 8 | 2 | 2 | 1 | 9 | 2 | 0 | 0 | 1 | 1 | 1 | 2 | 4 | 1 | 0 |
| VR 8083 H | 0 | 1 | 0 | 8 | 2 | 2 | 1 | 9 | 6 | 0 | 0 | 1 | 1 | 1 | 3 | 4 | 1 | 0 |
| VR 8087 | 0 | 1 | 1 | 0 | 9 | E | 0 | C | 3 | 0 | 9 | 9 | 8 | A | | | | |

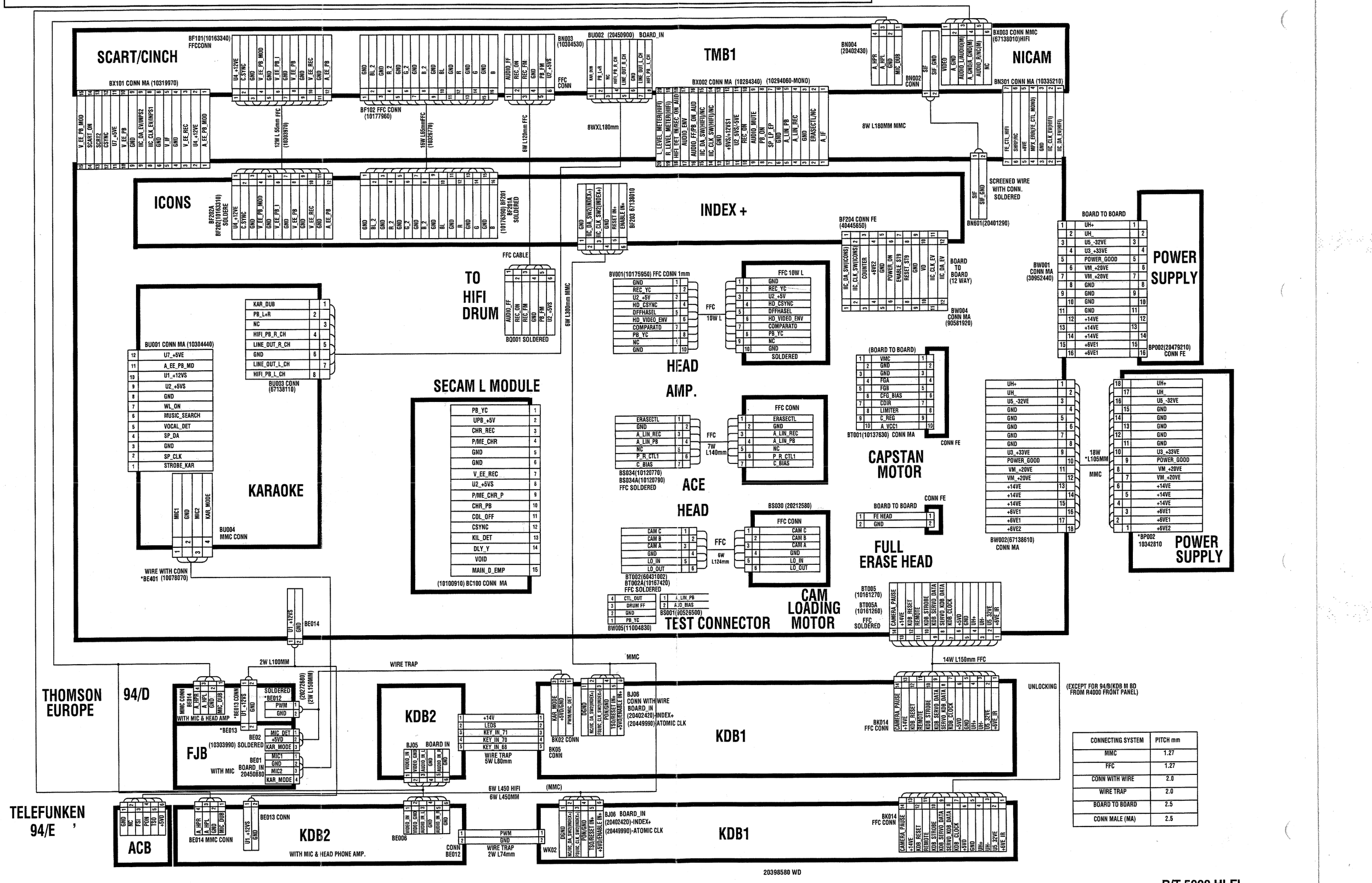
# Abbreviations / Abreviations / Abkürzungen

| | |
|---|---|
| AC | Alternating Current |
| ACC | Automatic Color Control |
| ACK | Automatic Color Killer |
| AD.REF | Analog/Digital Converter Reference |
| AE | Audio Erase |
| AFC | Automatic Frequency Control |
| AGC | Automatic Gain Control |
| A_IF | Audio IF |
| ALC | Automatic Level Control |
| AMP | Amplifier |
| APC | Automatic Phase Control |
| AP.CONT | Aperture Control |
| AV | Audio-Video |
| A/V SWP | Audio/Video Switching Point (DRUM FF) |
| B.EMPH | Burst Emphasis |
| B.DEEMPH | Burst Deemphasis |
| BG | Burst Gate |
| BID | Burst Identification |
| BLK | Blanking |
| BPF | Band Pass Filter |
| CAP | Capstan |
| CBC | Cable Box Control (Satellite Control) |
| CCD | Charge Coupled Device |
| CH | Channel |
| CFG | Capstan Frequency Generator |
| CLK | Clock |
| COMP | Comparator |
| CONV | Converter |
| CPWM | Capstan Pulse Width Modulation |
| C-REG | Capstan Regulation |
| CR | Color Rotary |
| CS | Chip Select |
| CSYNC | Composite Synch |
| CTL | Control |
| DC | Direct Current |
| D.LIM | Double Limitter |
| DEEMPH | Deemphasis |
| DET | Detector |
| D-FG | Drum Frequency Generator |
| DFF | Drum Flip Flop |
| DIF.EQ | Differential Equalizer |
| DIG | Digital |
| DLY | Delay |
| DOC | Drop Out Compensation |
| E-E | Electronic-Electronic |
| EMPH | Emphasis |
| ENV | Envelope |
| EP | Extended Play |
| EQ | Equalizer |
| F.E | Full Erase |
| F.REW | Fast Rewind |
| F.FWD | Fast Forward |
| F/R | Forward/Rewind |
| FCB | Front Connection Board |
| FF | Fast Forward |
| FG | Frequency Generator |
| FMCI | FM Carrier Interleave |
| FWD | Forward |
| GND | Ground |
| GCA | Gain Controlled Amplifier |
| HASEL | Head Amplifier Select |
| HAB | Head Amplifier Board |
| HD | Horizontal Synch Pulse |
| HPF | High Pass Filter |
| I.R | Infra Red |
| ID | Identification |
| INP/IN | Input |
| KDB | Key Display Board |
| LIM | Limitter |
| LP | Long Play |
| LPF | Low Pass Filter |
| MESECAM | Middle East Secam |
| NC | Noise Canceller |
| OSD | On Screen Display |
| PB | Play Back |
| PB_C | Play Back Chroma |
| PCB | Printed Circuit Board |
| PDC | Program Delivery Control |
| PG | Pulse Generator |
| PH | Pseudo Horizontal Synch |
| PIF | Picture IF |
| PLL | Phase Locked Loop |
| PS | Phase Switch |
| PV | Pseudo Vertical Synch |
| PWM | Pulse Width Modulation |
| REC | Record |
| REC_C | Record Chroma |
| REW | Rewind |
| REV | Reverse |
| SCL | Serial Clock |
| SDA | Serial Data |
| SEC | SECAM |
| SU REEL | Supply Reel |
| SMPS | Switch Mode Power Supply |
| SP | Standard Play |
| SS | Synch Separator |
| SW | Switch |
| TU REEL | Take Up Reel |
| TMB | Terminal Board |
| VAL | Components without value and not on the PCB |
| VCA | Voltage Controlled Amplifier |
| VCO | Voltage Controlled Oscillator |
| VCR | Video Cassette Recorder |
| VD | Supply Voltage Digital |
| VE | Voltage (Ever) |
| V_ENV | Video Envelope |
| V_IF | Video IF |
| VS | Voltage (Switched) |
| VM | Motor Voltage ( Drum & Loading motor) |
| VMC | Motor Voltage (Capstan motor) |
| VPS | Video Program System |
| W/D | White/Dark |
| Y/C | Luminance/Chrominance |

# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( VR 6081 - VR 6087/F )

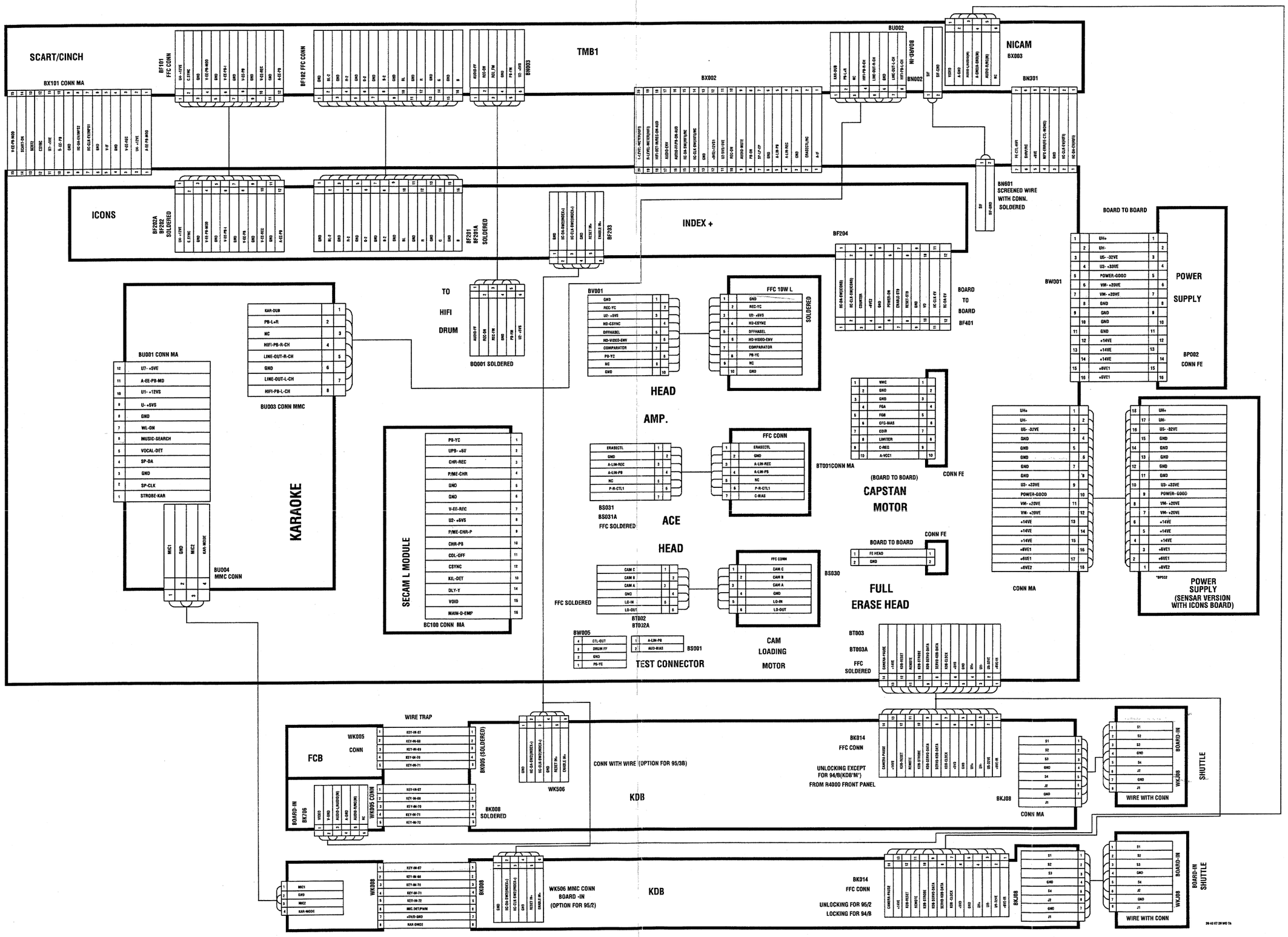


# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( M9571 HIFI - VR 8087 - VPH 6680 - VPH 6751 )

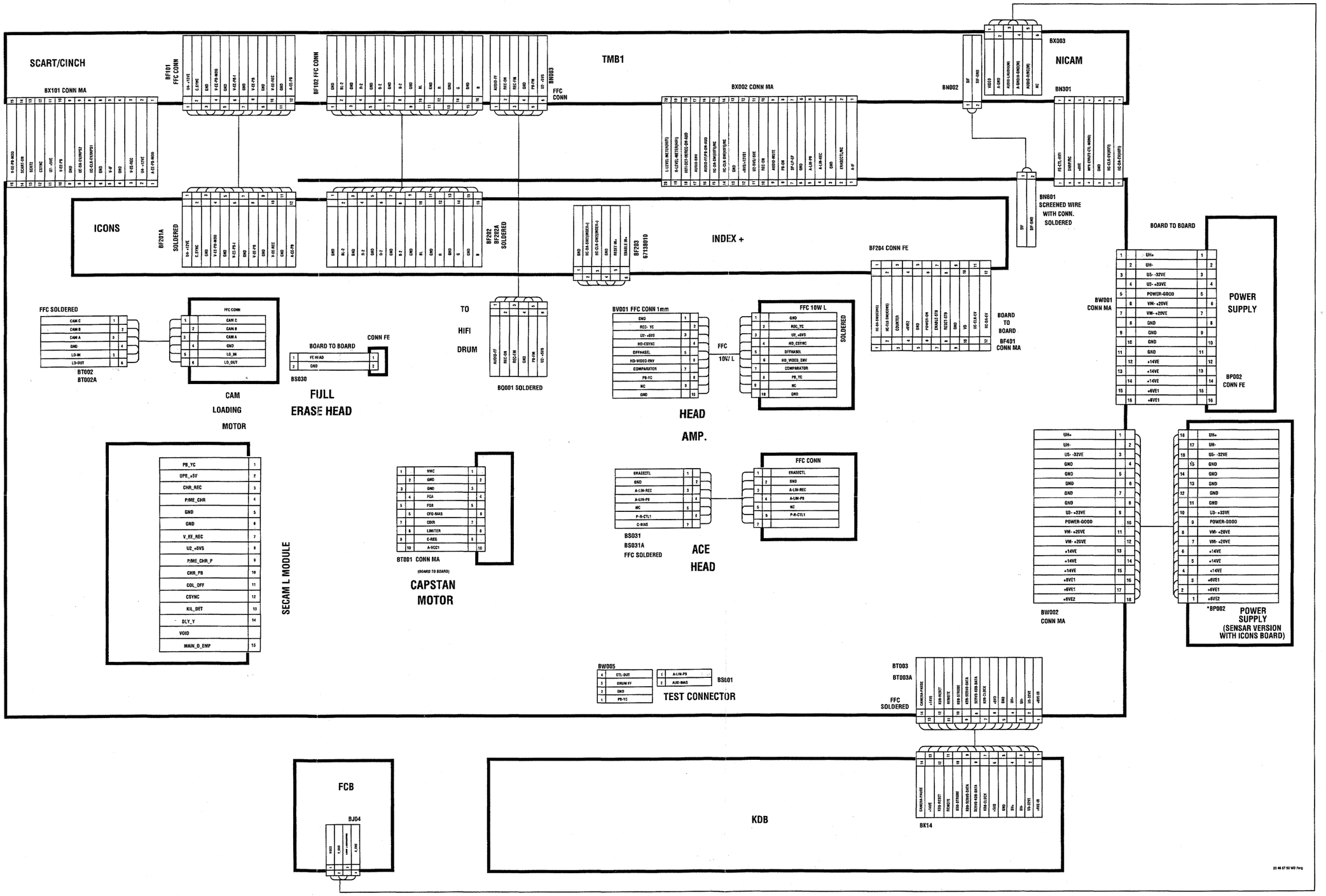



| CONNECTING SYSTEM | PITCH mm |
|---|---|
| MMC | 1.27 |
| FFC | 1.27 |
| CONN WITH WIRE | 2.0 |
| WIRE TRAP | 2.0 |
| BOARD TO BOARD | 2.5 |
| CONN MALE (MA) | 2.5 |

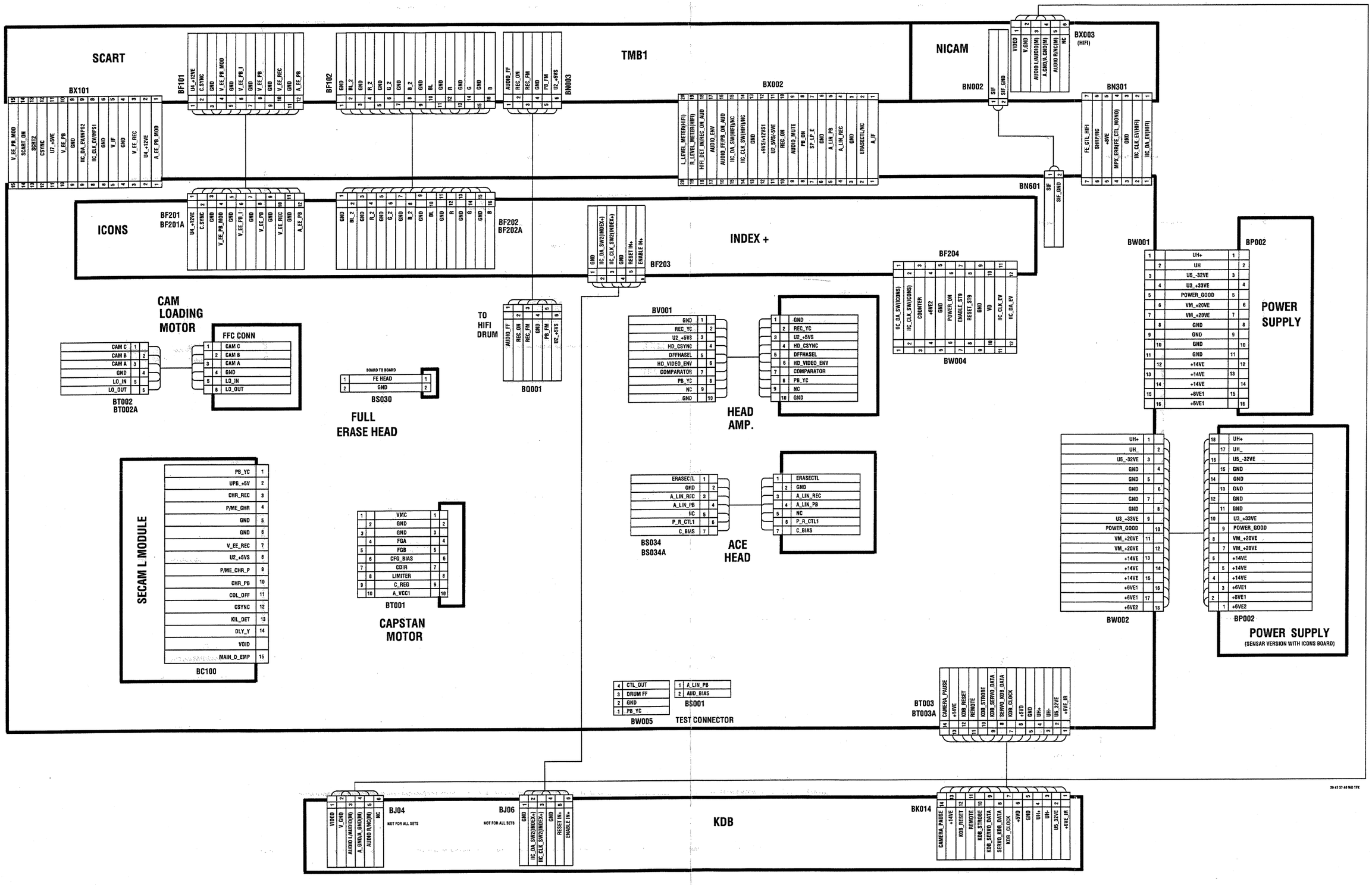
# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( VPH 6601 - VPH 6697 SENSAR - VR 7081 )



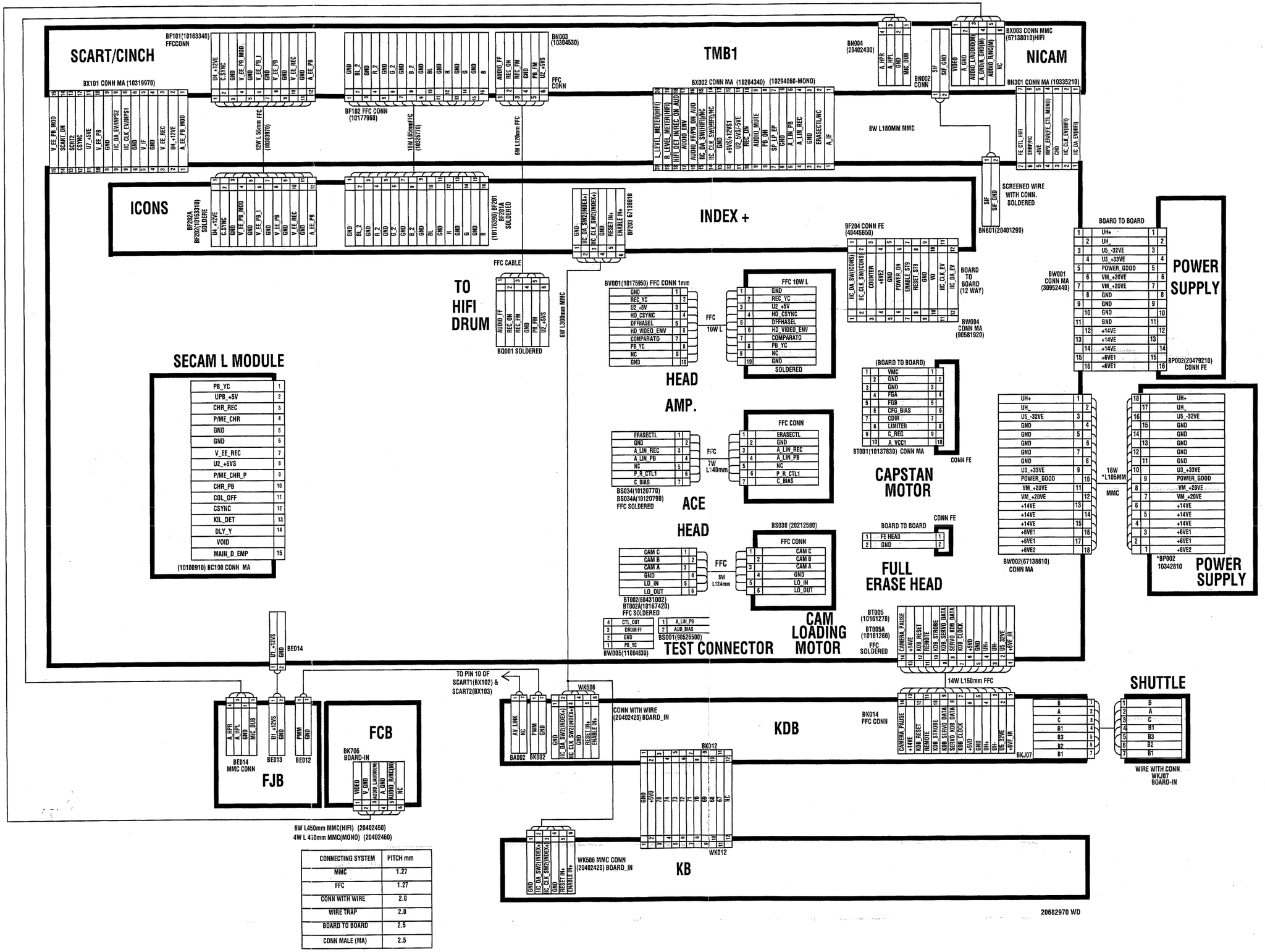
# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( V3450 SV )



# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( VPH 6600 N - T8006 HIFI - M 9560 HIFI - M 9560 SA - M 9680 HIFI )

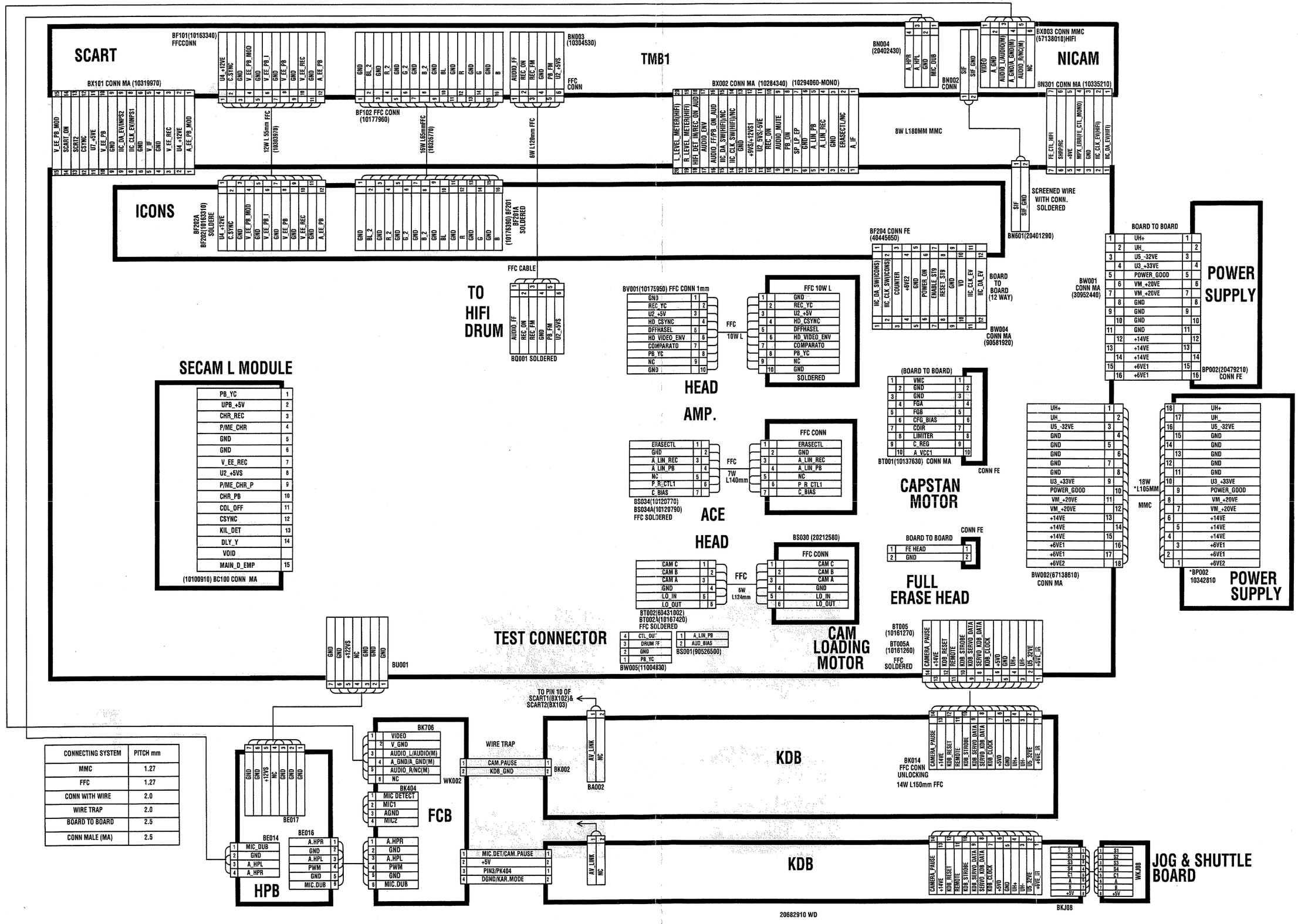


# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( VPH 6790 )



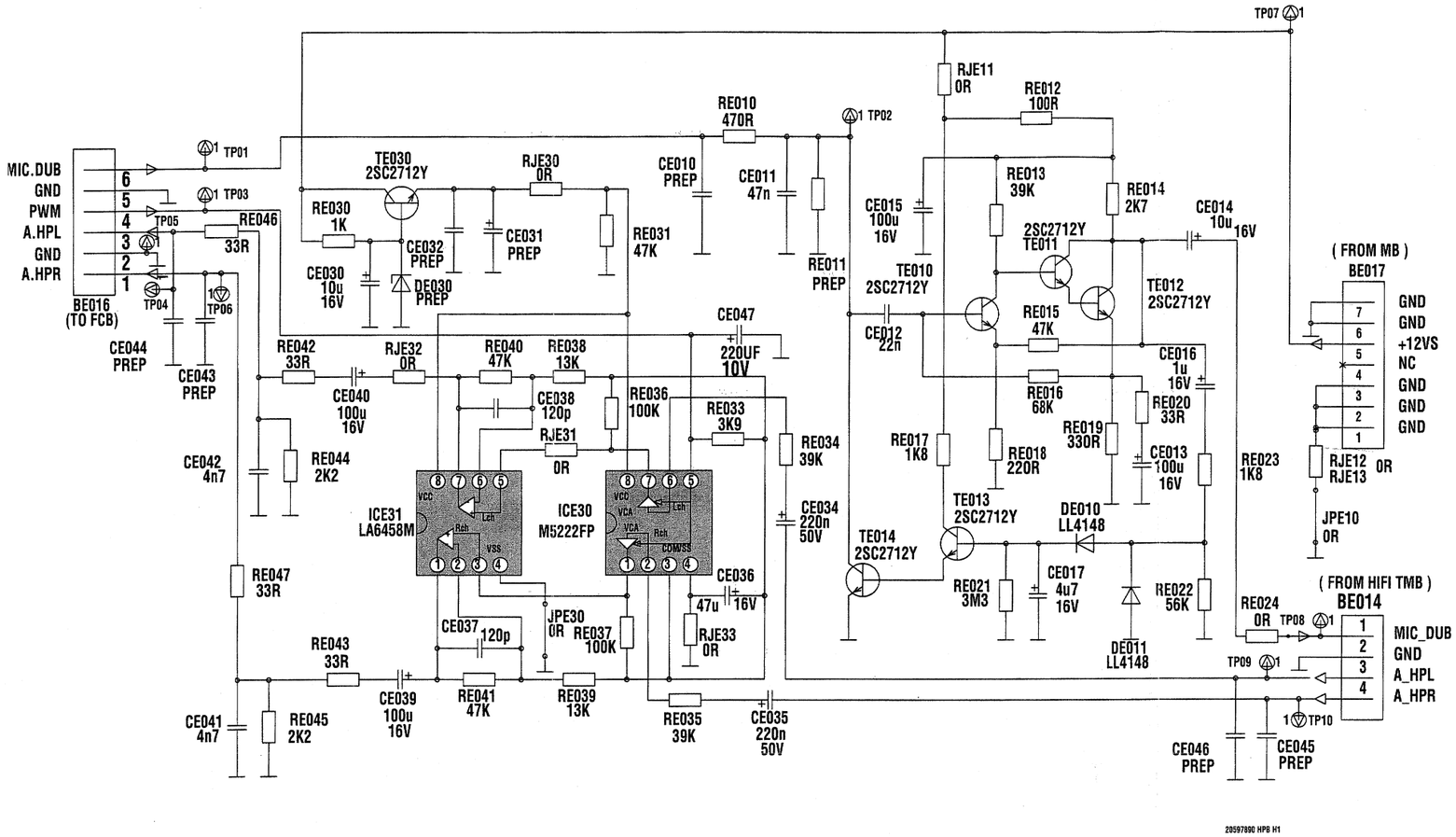

| CONNECTING SYSTEM | PITCH mm |
|---|---|
| MMC | 1.27 |
| FFC | 1.27 |
| CONN WITH WIRE | 2.0 |
| WIRE TRAP | 2.0 |
| BOARD TO BOARD | 2.5 |
| CONN MALE (MA) | 2.5 |

# WIRING DIAGRAM - SCHEMA D'INTERCONNEXIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES ( VPH 6750 - VPH 6780 - VR 8083H )



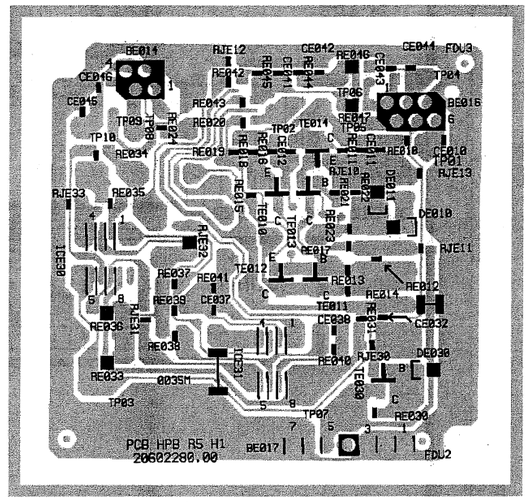
# AMPLIFIER HEADPHONE/MICROPHONE BOARD - PLATINE AMPLIFICATEUR CASQUE/MICRO - VERSTÄRKERPLATTE KOPFHÖRER/MIKROFON - PIASTRA MICROFONO/AMPLIFICATORE CUFFIA - PLACA AMPLIFICADOR AURICULARES/MICRÓFONO ( M 9680 HIFI )

SCHEMATIC DIAGRAM -SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

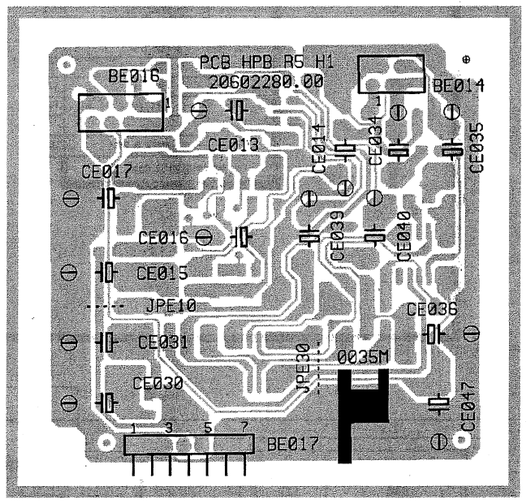



20597890 HPB H1

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

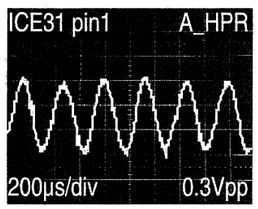


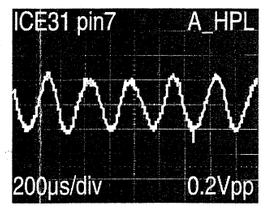

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

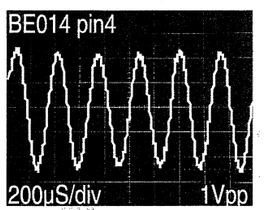


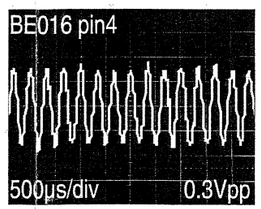

| HPB | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| ICE30 | 1 | 5.6 | 5.6 | 5.5 |
| | 2 | 5.6 | 5.6 | 5.6 |
| | 3 | 5.7 | 5.6 | 5.6 |
| | 4 | 0 | 0 | 0 |
| | 5 | 5.6 | 5.6 | 5.5 |
| | 6 | 5.6 | 5.6 | 5.6 |
| | 7 | 5.6 | 5.6 | 5.5 |
| | 8 | 11.4 | 11.4 | 11.3 |
| | | | | |
| ICE31 | 1 | 5.6 | 5.6 | 5.5 |
| | 2 | 5.6 | 5.6 | 5.6 |
| | 3 | 5.6 | 5.6 | 5.6 |
| | 4 | 0 | 0 | 0 |
| | 5 | 5.6 | 5.6 | 5.5 |
| | 6 | 5.6 | 5.6 | 5.6 |
| | 7 | 5.6 | 5.6 | 5.5 |
| | 8 | 11.4 | 11.4 | 11.3 |
| | | | | |
| TE030 | E | 11.4 | 11.4 | 11.4 |
| | B | 12.1 | 12.1 | 12 |
| | C | 12.2 | 12.2 | 12.2 |

| HPB | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TE014 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |
| | | | | |
| TE013 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 12.2 | 12.2 | 12.2 |
| | | | | |
| TE010 | E | 0 | 0 | 0 |
| | B | 0.7 | 0.6 | 0.6 |
| | C | 1.9 | 1.9 | 0 |
| | | | | |
| TE011 | E | 1.5 | 1.4 | 1.4 |
| | B | 2 | 1.9 | 1.9 |
| | C | 5 | 5 | 5 |
| | | | | |
| TE012 | E | 0.8 | 0.7 | 0.7 |
| | B | 1.5 | 1.4 | 1.4 |
| | C | 5.1 | 5 | 5 |



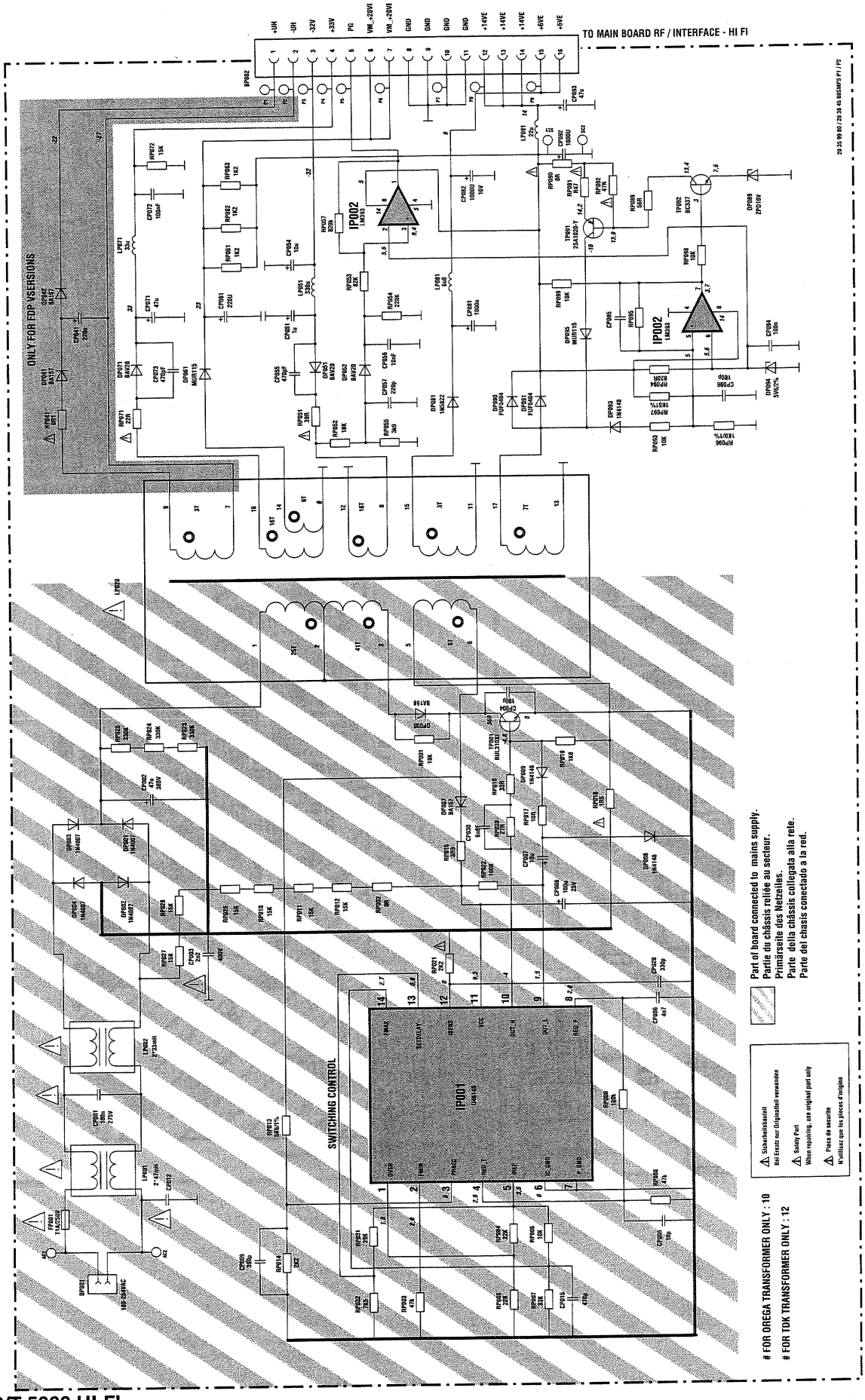



# POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE

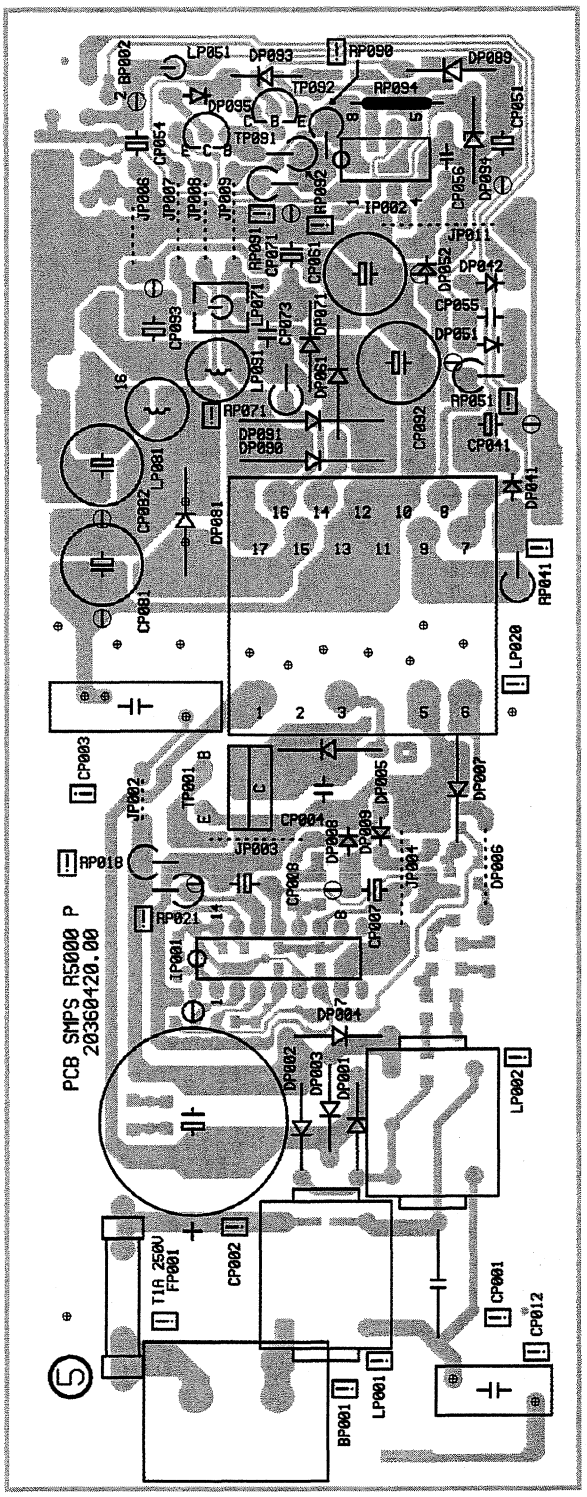
## SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

**(VPH6600N-VPH6601-VPH6680-VPH6750-VPH6751-VPH6780-M9560HIFI/SA-M9571HIFI M9680HIFI-T8006HIFI-V3450SV-VR6081-VR6087/F-VR7081-VR8083H-VR8087)**

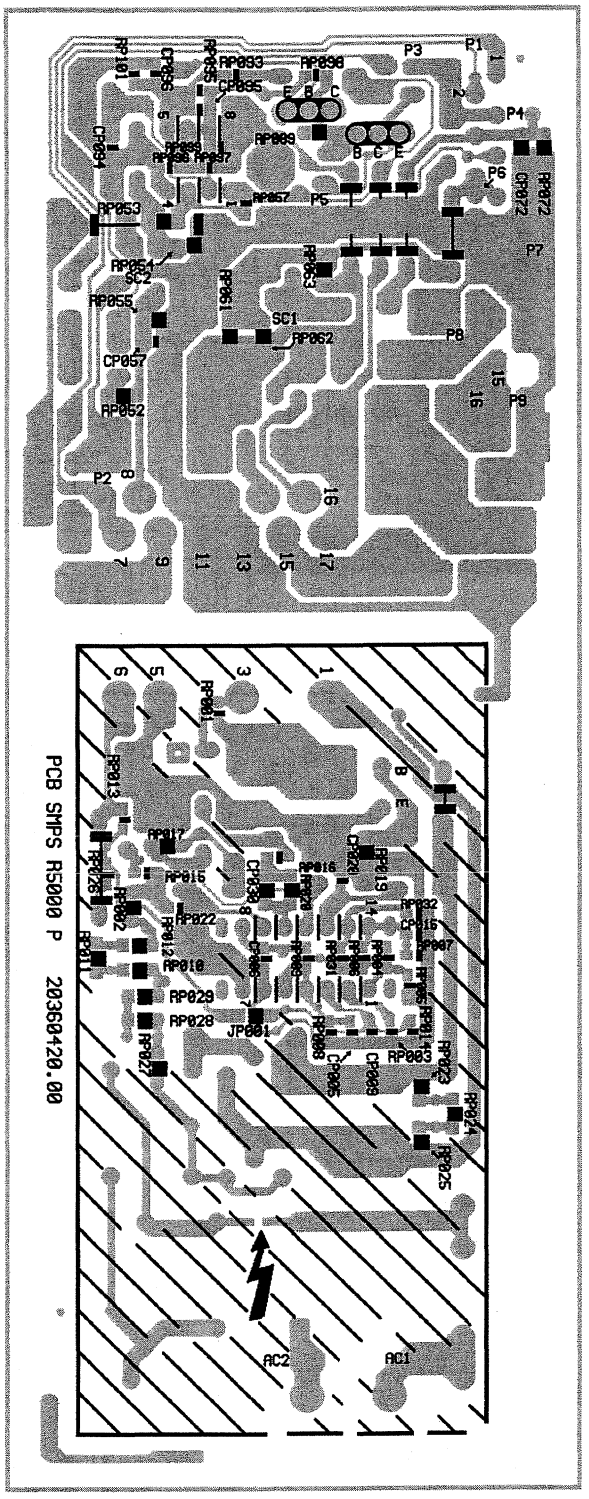


# POWER SUPPLY BOARD - PLATINE ALIMENTATION - NETZTEIL LEITERPLATTE - PIASTRA ALIMENTAZIONE - PLATINA ALIMENTACIÓN

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

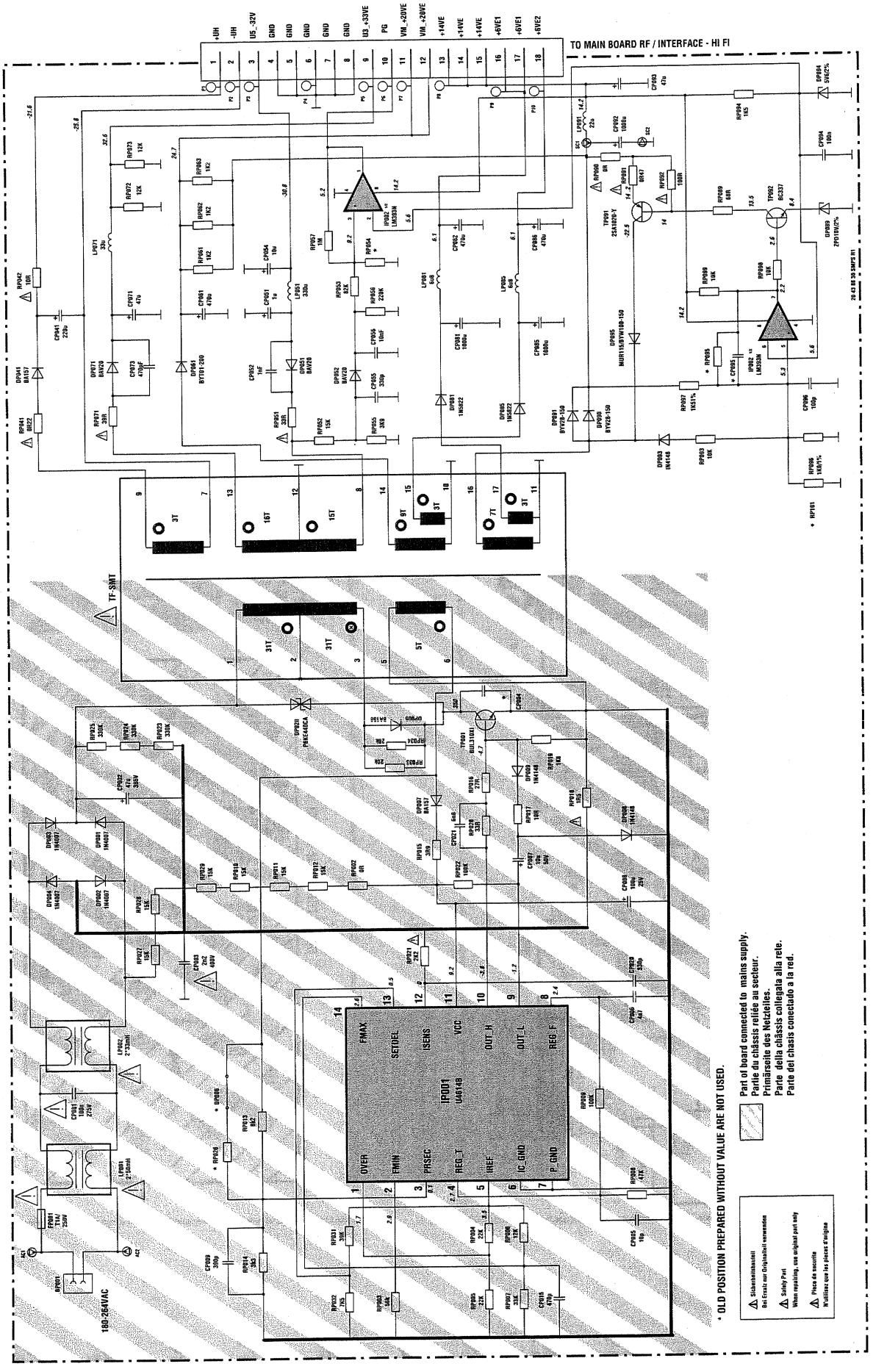



Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



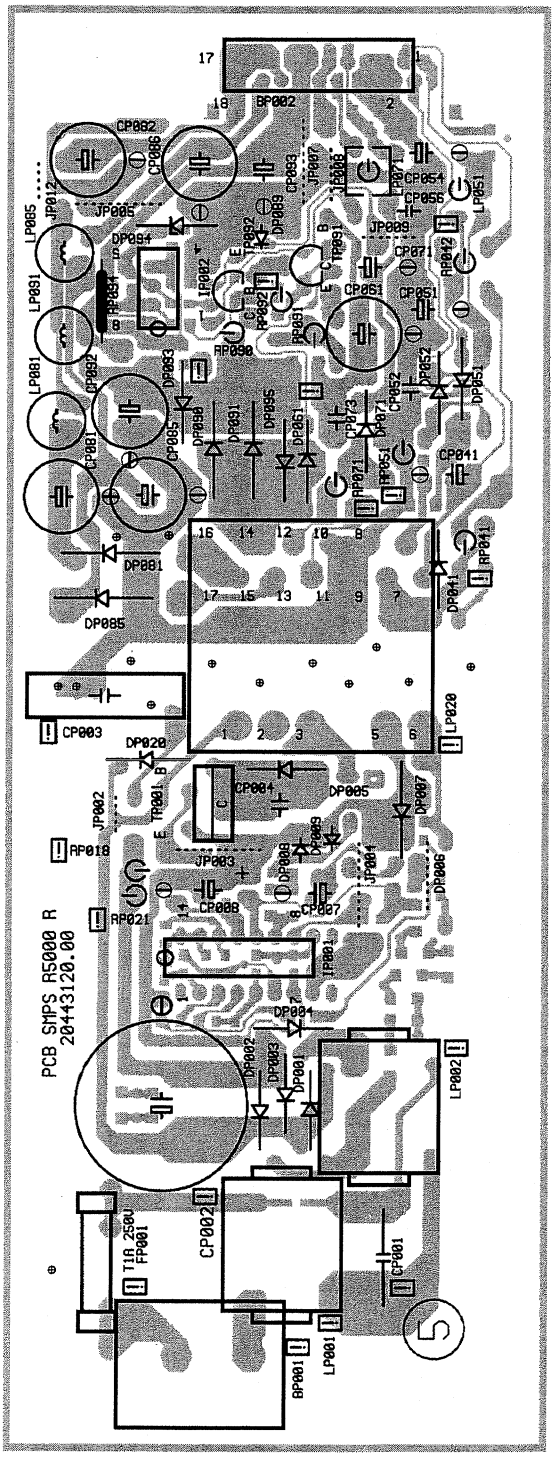
# POWER SUPPLY - ALIMENTATION - NETZTEIL - ALIMENTAZIONE -

## SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA -ESQUEMA
## (VPH 6697 SENSAR - VPH 6790)

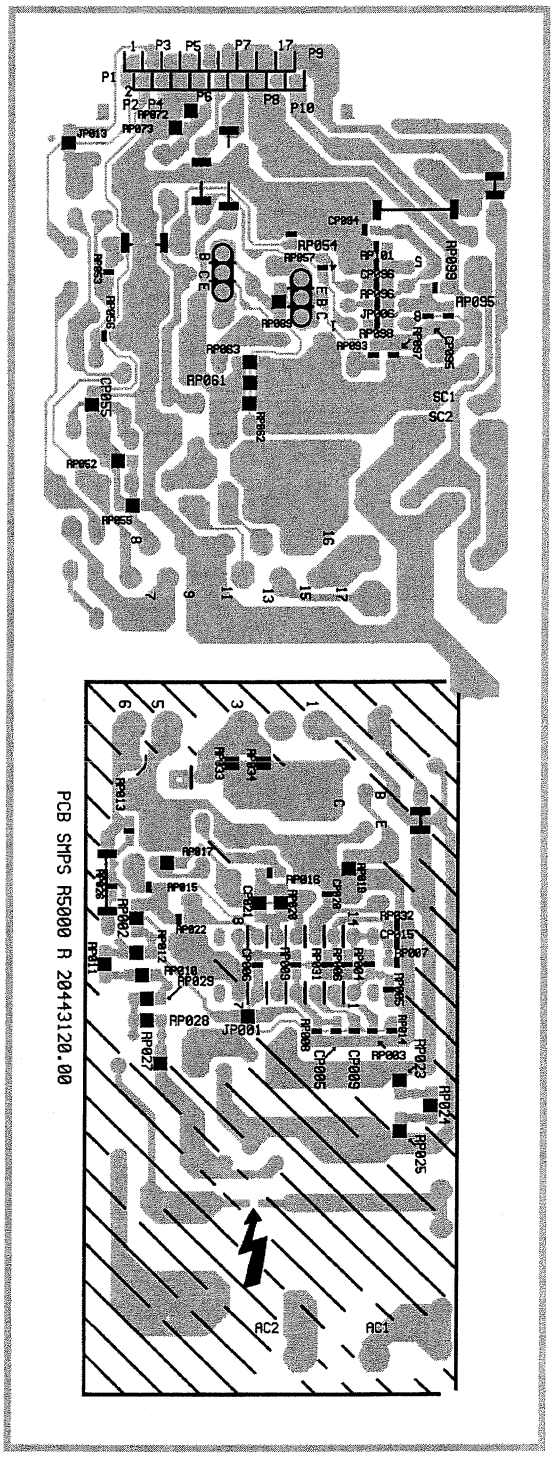


# POWER SUPPLY BOARD - PLATINE ALIMENTATION - NETZTEIL LEITERPLATTE - PIASTRA ALIMENTAZIONE - PLATINA ALIMENTACIÓN

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes



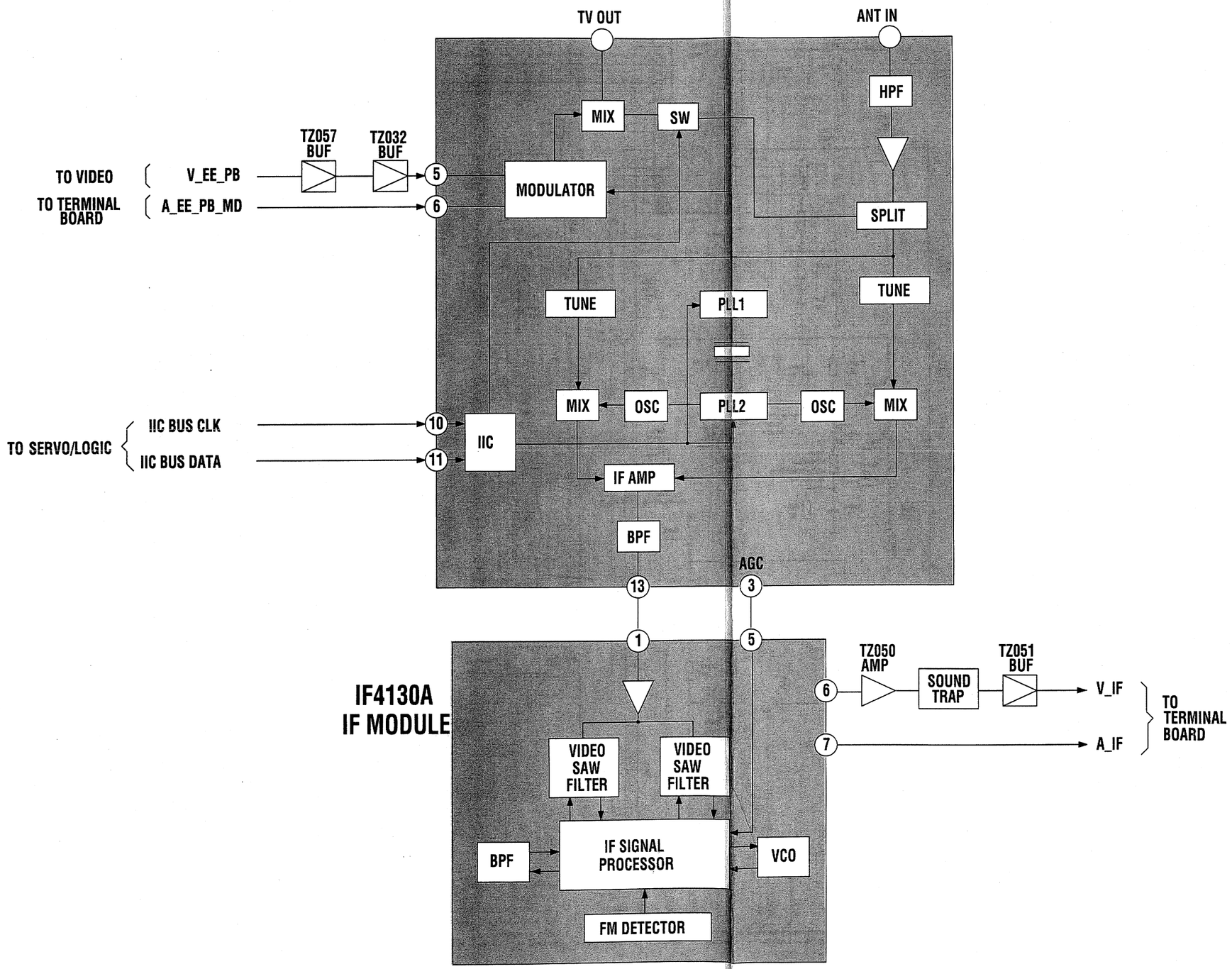

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# POWER SUPPLY INTERFACE / AUDIO SIGNAL PROCESSING - INTERFACE ALIMENTATION / CIRCUITS AUDIO - NETZEIL INTERFACE / AUDIO SIGNALVERARBEITUNG - INTERFACCIA ALIMENTAZIONE / ELABORAZIONE AUDIO - INTERFAZ ALIMENTACIÓN / TRATAMIENTO AUDIO

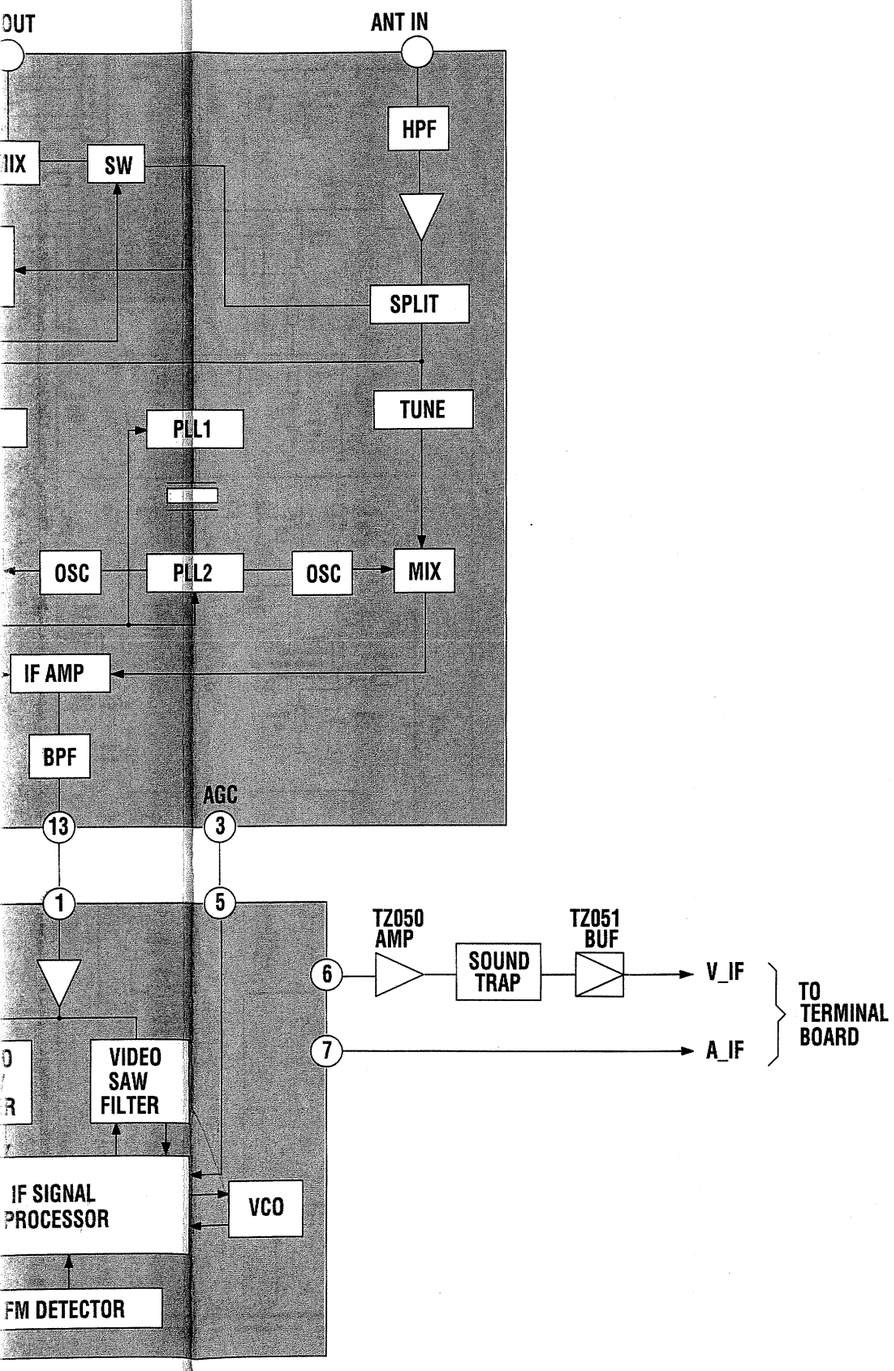
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES

## FE 5100
## TUNER & MODULATOR



# TERFACE ALIMENTATION / CIRCUITS AUDIO - NETZEIL INTERFACE / AUDIO
# 3ORAZIONE AUDIO - INTERFAZ ALIMENTACIÓN / TRATAMIENTO AUDIO

A BLOCCHI - ESQUEMA DE BLOQUES



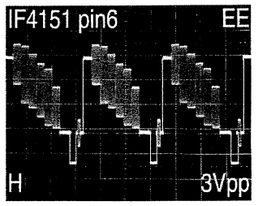


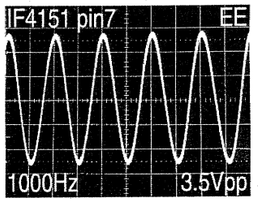

# MEASUREMENTS POWER SUPPLY INTERFACE / AUDIO SIGNAL PROCESSING - MESURES INTERFACE / CIRCUITS AUDIO - MESSUNGEN NETZEIL INTERFACE / AUDIO SIGNALVERARBEITUNG - MISURI INTERFACCIA ALIMENTAZIONE / ELABORAZIONE AUDIO - MEDIDAS INTERFAZ ALIMENTACIÓN / TRATAMIENTO AUDIO

| INTERFACE | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TUNER | 1 | 0 | 0 | 0 |
| | 2 | 5.2 | 5.2 | 5.2 |
| | 3 | 7.8 | 7.8 | 7.8 |
| | 4 | 12.1 | 12.1 | 12.1 |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | 12.2 | 12.2 | 12.2 |
| | 8 | 5.5 | 5.5 | 5.5 |
| | 9 | 32 | 32 | 32 |
| | 10 | 4.8 | 4.8 | 4.8 |
| | 11 | 4.6 | 4.6 | 4.6 |
| | 12 | 1 | 1 | 1 |
| | 13 | 1.9 | 1.9 | 1.9 |
| IF | 1 | 1.9 | 1.9 | 1.9 |
| | 2 | 0 | 0 | 0 |
| | 3 | 1 | 1 | 1 |
| | 4 | 9.7 | 9.7 | 9.7 |
| | 5 | 7.9 | 7.9 | 7.9 |
| | 6 | 5.3 | 5.3 | 5.3 |
| | 7 | 8.5 | 8.5 | 8.5 |
| | 8 | 0 | 0 | 0 |
| | 9 | 12.2 | 12.2 | 12.2 |
| | 10 | 0 | 0 | 0 |
| TG029 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 10.8 | 0 |
| TG030 | E | 0 | 0 | 0 |
| | B | 0 | 4.8 | 0 |
| | C | 12.2 | 0 | 12.2 |
| TG031 | E | 12.2 | 11.7 | 12.2 |
| | B | 12.2 | 10.9 | 12.2 |
| | C | 0 | 11.7 | 0 |
| TN430 | E | 13.6 | 13.6 | 0 |
| | B | 13.8 | 13.8 | 0 |
| | C | 13.9 | 13.9 | 13.8 |
| TN439 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0.8 |
| | C | 13.5 | 13.5 | 0 |

| INTERFACE | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TN640 | E | 4.8 | 4.8 | 4.8 |
| | B | 5.5 | 5.5 | 5.5 |
| | C | 12.2 | 12.2 | 12.2 |
| TN641 | E | 2.8 | 2.8 | 2.8 |
| | B | 3.4 | 3.4 | 3.4 |
| | C | 5.5 | 5.5 | 5.5 |
| TS030 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0.2 |
| | C | 13.9 | 13.9 | 13.4 |
| TS039 | E | 0 | 0 | 7.5 |
| | B | 0 | 0 | 8.1 |
| | C | 13.9 | 13.9 | 13.4 |
| TS119 | E | 0 | 0 | 0 |
| | B | 0 | 4.7 | 0 |
| | C | 4 | 0 | 4 |
| TW001 | E | 0 | 0 | 0 |
| | B | 0.6 | 0.6 | 0.6 |
| | C | 0 | 0 | 0 |
| TW002 | E | 31.5 | 31.5 | 31.5 |
| | B | 0 | 0 | 0 |
| | C | 31.5 | 31.5 | 31.5 |
| TW003 | E | 12.2 | 12.2 | 12.2 |
| | B | 12.9 | 12.9 | 12.9 |
| | C | 12.4 | 12.4 | 12.4 |
| TW005 | E | 5.1 | 5.1 | 5.1 |
| | B | 5.9 | 5.9 | 5.9 |
| | C | 5.5 | 5.5 | 5.5 |
| TW006 | E | 0 | 0 | 0 |
| | B | 5.1 | 5.1 | 5.1 |
| | C | 0 | 0 | 0 |
| TW008 | E | 8.4 | 8.4 | 8.4 |
| | B | 9 | 9 | 9 |
| | C | 13.1 | 13.1 | 13.1 |

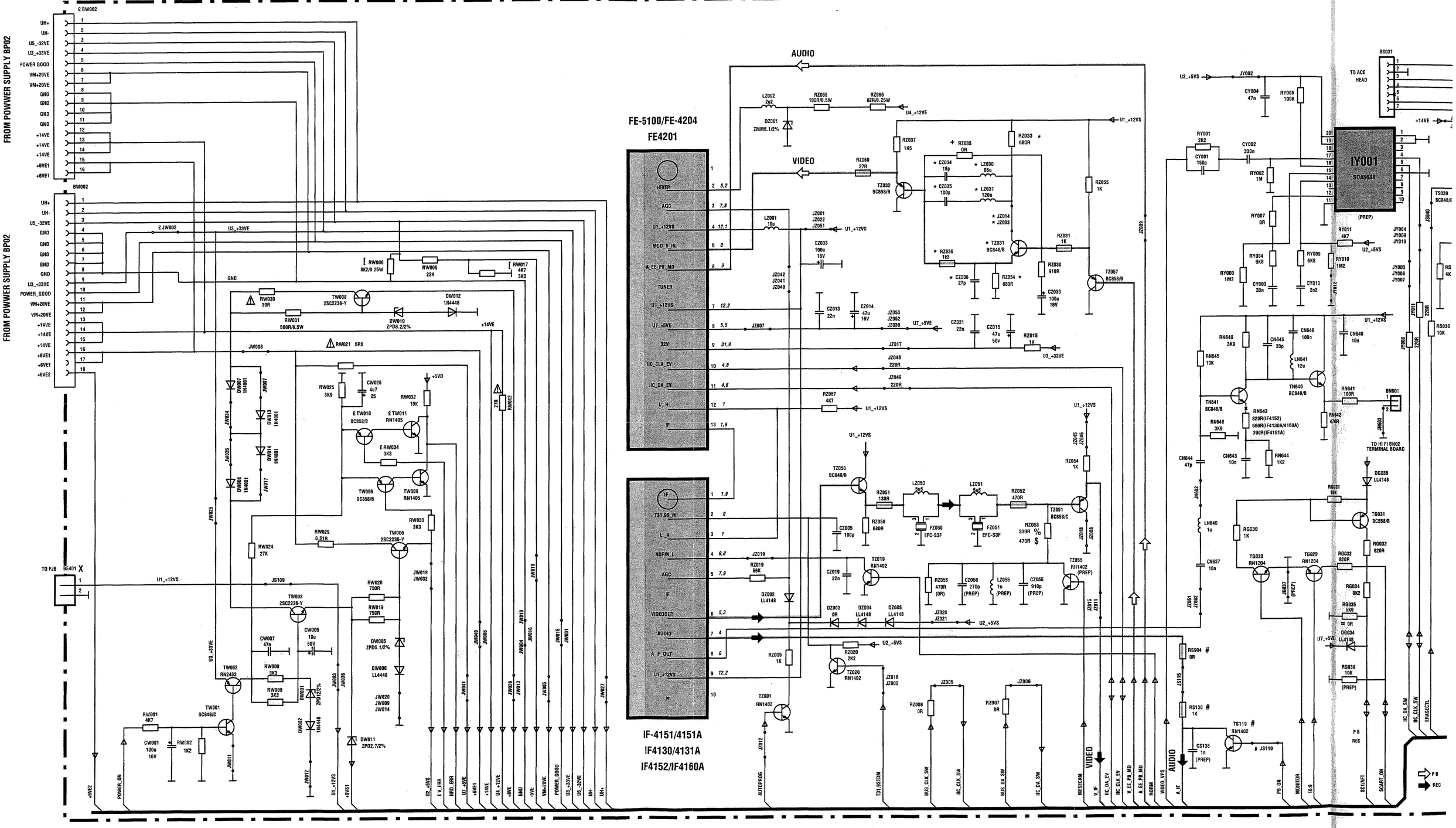
| INTERFACE | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TW009 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 5 | 5 | 5 |
| TZ001 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 7.5 | 7.5 | 7.5 |
| TZ019 | E | 0 | 0 | 0 |
| | B | 4.9 | 4.9 | 4.9 |
| | C | 0 | 0 | 0 |
| TZ020 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 4.3 | 4.3 | 4.3 |
| TZ050 | E | 5.2 | 5.2 | 5.2 |
| | B | 5.9 | 5.9 | 5.9 |
| | C | 12 | 12 | 12 |
| TZ051 | E | 2.6 | 2.6 | 2.6 |
| | B | 1.9 | 1.9 | 1.9 |
| | C | 0 | 0 | 0 |



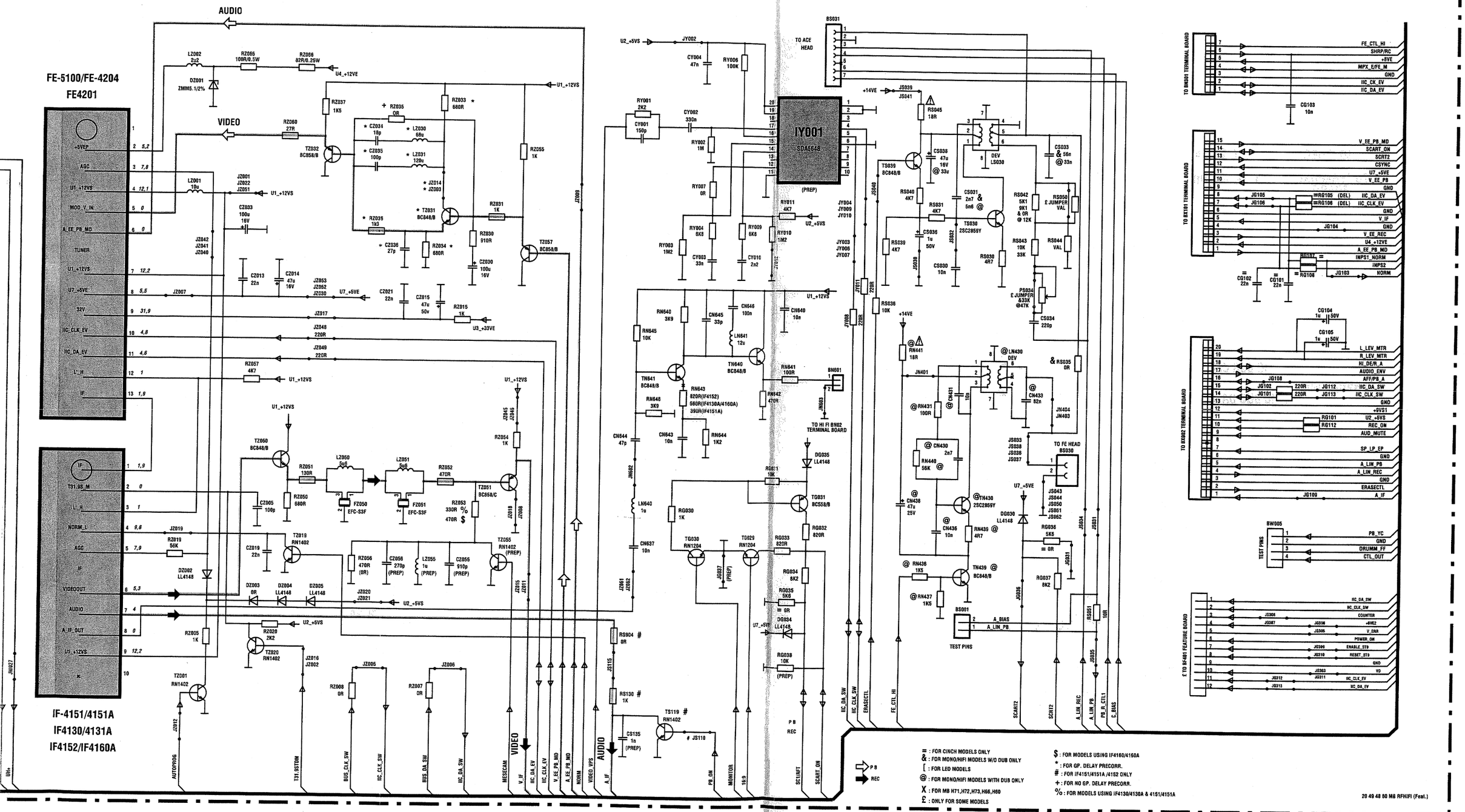
# POWER SUPPLY INTERFACE / AUDIO SIGNAL PROCESSING - INTERFACE ALIMENTATION / CIRCUITS AUDIO - NETZEIL INTERFACE / AUDIO SIGNALVERARBEITUNG - IN ALIMENTAZIONE / ELABORAZIONE AUDIO - INTERFAZ ALIMENTACIÓN / TRATAMIENTO AUDIO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA **( VPH6600N - VPH6601 - VPH6680 - VPH6697 SENSAR - VPH6750 - VPH 6751 - VPH 6780 - VPH 6790 - M9560HIFI/S M9571HIFI - M9680HIFI - T8006HIFI - VR6087/F - VR7081 - VR 8083SH - VR8087 )**



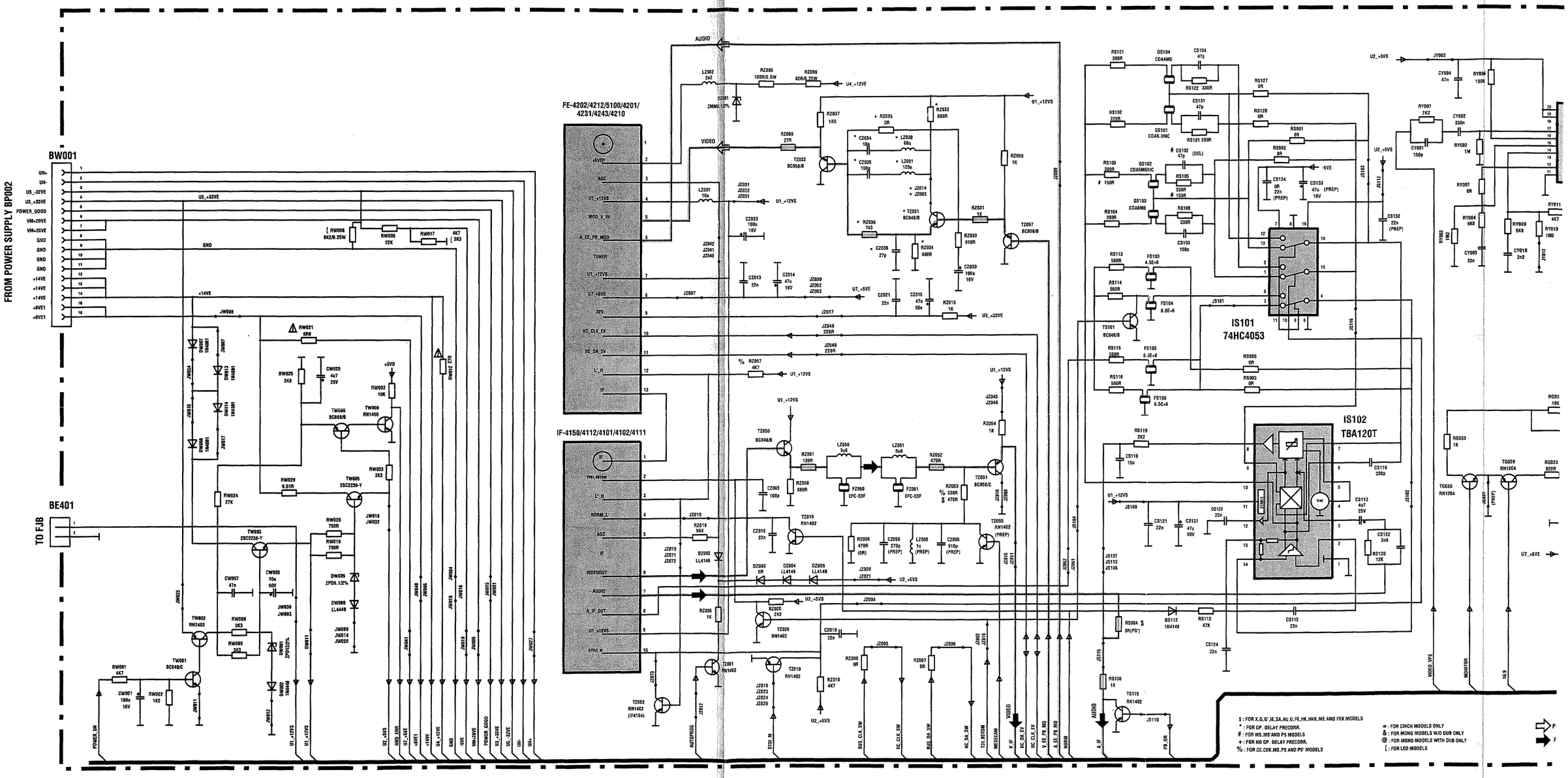
# RFACE ALIMENTATION / CIRCUITS AUDIO - NETZEIL INTERFACE / AUDIO SIGNALVERARBEITUNG - INTERFACCIA
# IÓN / TRATAMIENTO AUDIO

UEMA ( VPH6600N - VPH6601 - VPH6680 - VPH6697 SENSAR - VPH6750 - VPH 6751 - VPH 6780 - VPH 6790 - M9560HIFI/SA -



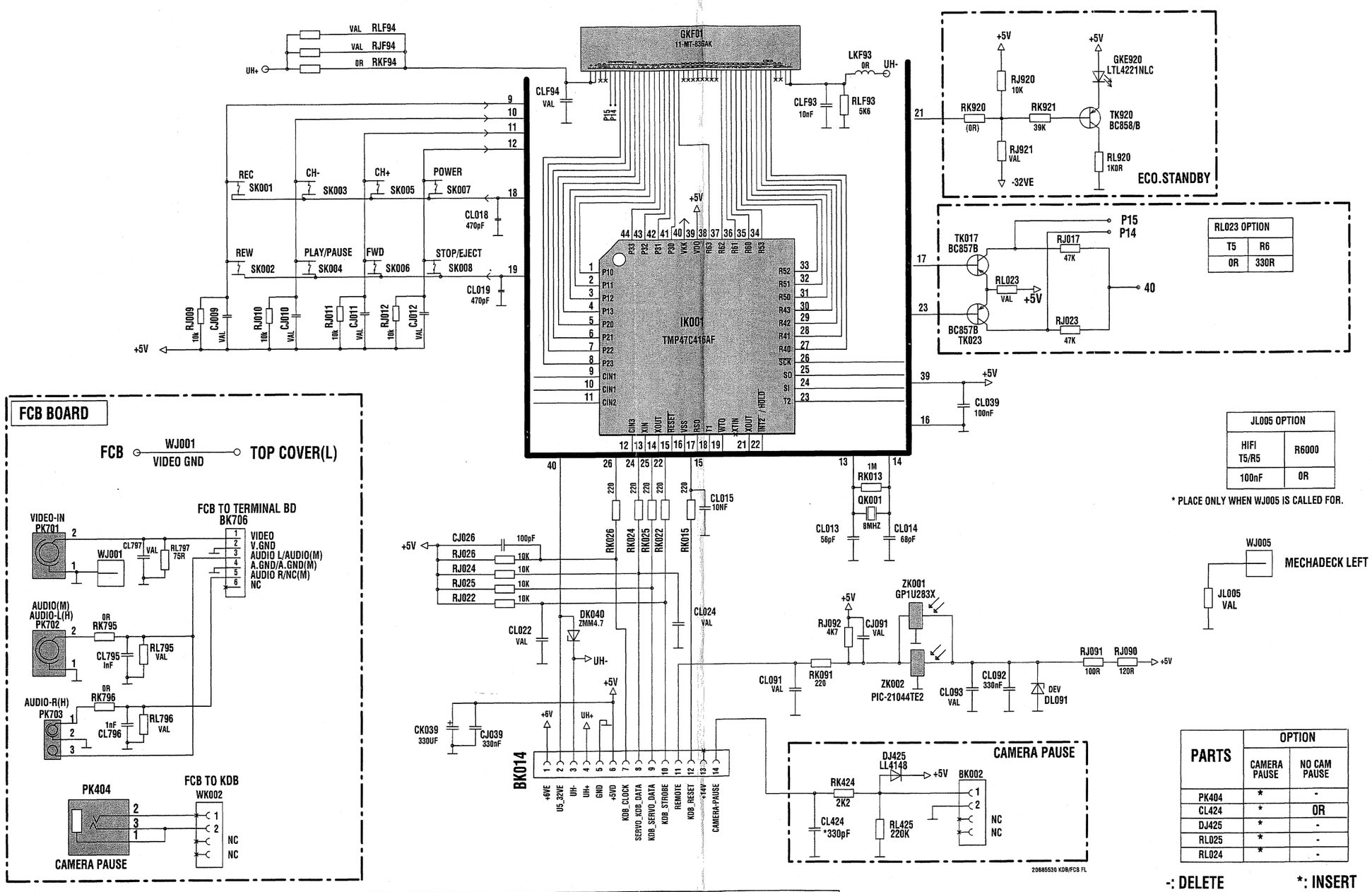
# POWER SUPPLY INTERFACE / AUDIO SIGNAL PROCESSING - INTERFACE ALIMENTATION / CIRCUITS AUDIO - NETZEIL INTERFACE / AUDIO SIGNALVERARBEITUNG - ALIMENTAZIONE / ELABORAZIONE AUDIO - INTERFAZ ALIMENTACIÓN / TRATAMIENTO AUDIO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA **( V3450SV - VR6081 )**



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6750 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



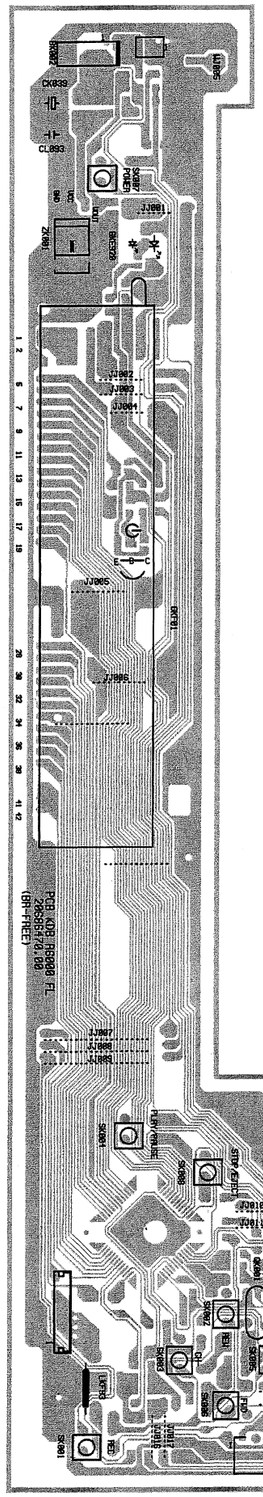

| PARTS | OPTION | |
|---|---|---|
| | CAMERA PAUSE | NO CAM PAUSE |
| PK404 | * | - |
| CL424 | * | 0R |
| DJ425 | * | - |
| RL025 | * | - |
| RL024 | * | - |

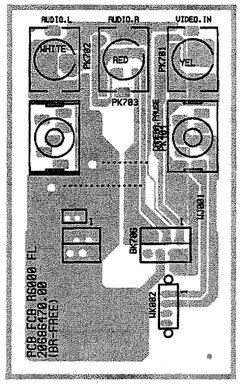
-: DELETE *: INSERT

| TOCOM | DESCRIPTION | CAM.PAUSE | FAV | S/W | ECO | SK001-SK008 | MODELS |
|---|---|---|---|---|---|---|---|
| 20685500 | ASY KDB/FCB R6 FL1/FL1 | YES | 2 | R6-R1T | YES | HIFI/MONO | VP2750,VP4750 |
| 20729530 | ASY KDB/FCB R6 FL2/FL2 | YES | 3 | R6-R1T | NO | HIFI/MONO | VPH6750 |
| 20723090 | EQU KDB R6 FL3 | NO | NO | R6-R1T | YES | HIFI/MONO | VP2701,VP4701,V2700,V4700 |

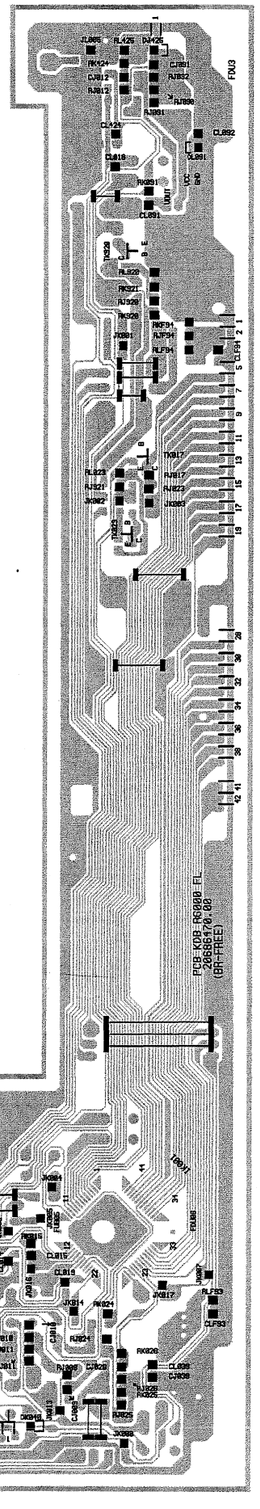
# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(THOMSON : VPH 6750)**

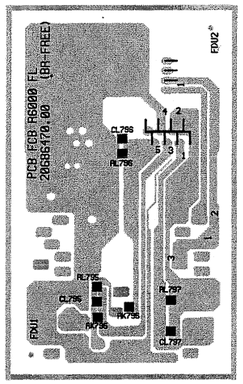
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes




Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

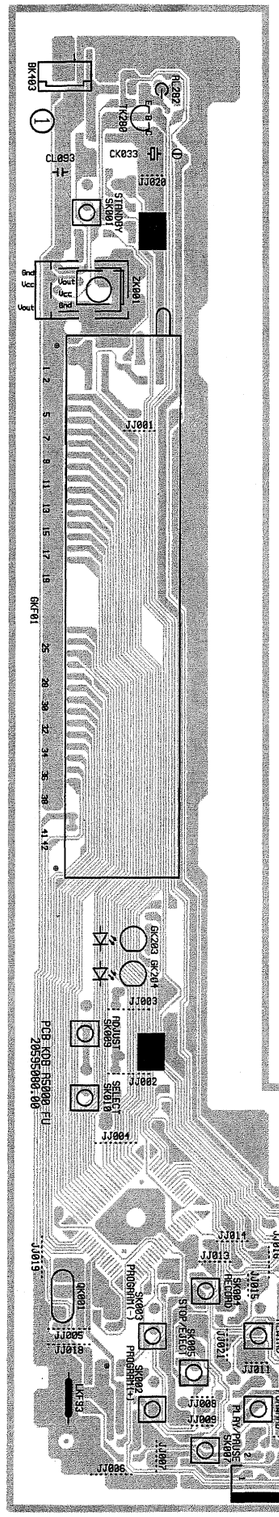


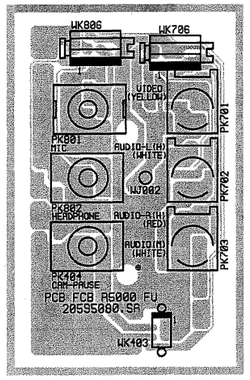





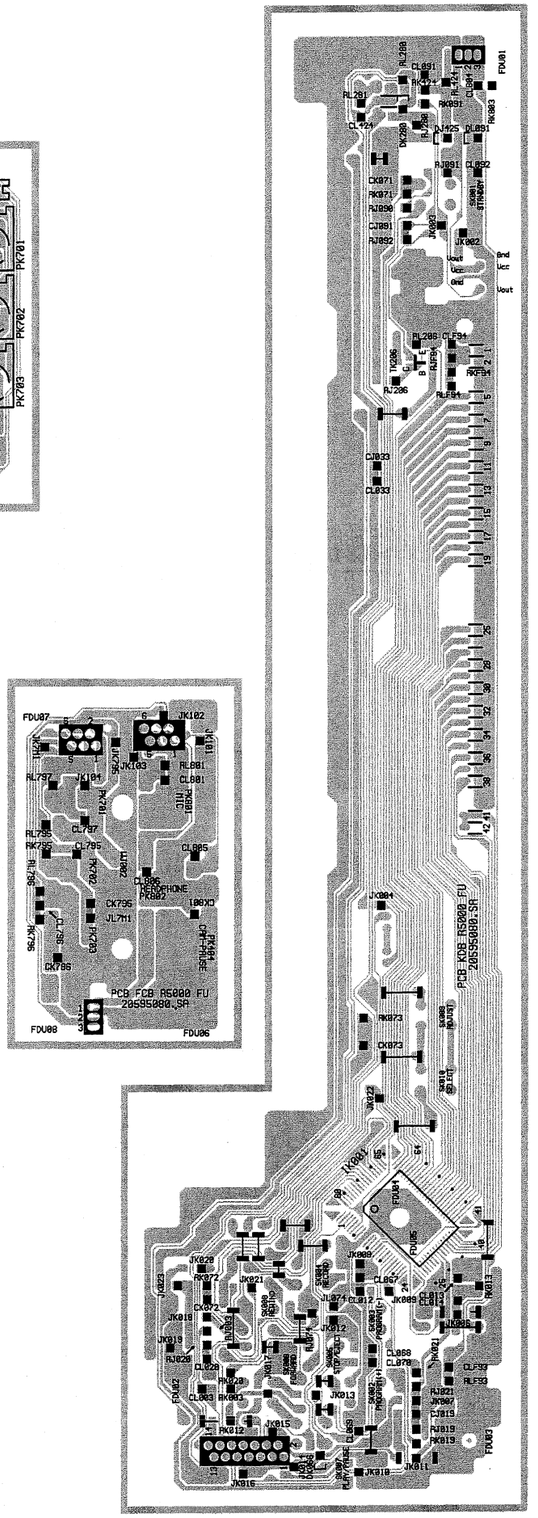

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(TELEFUNKEN : M 9680 HIFI)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado



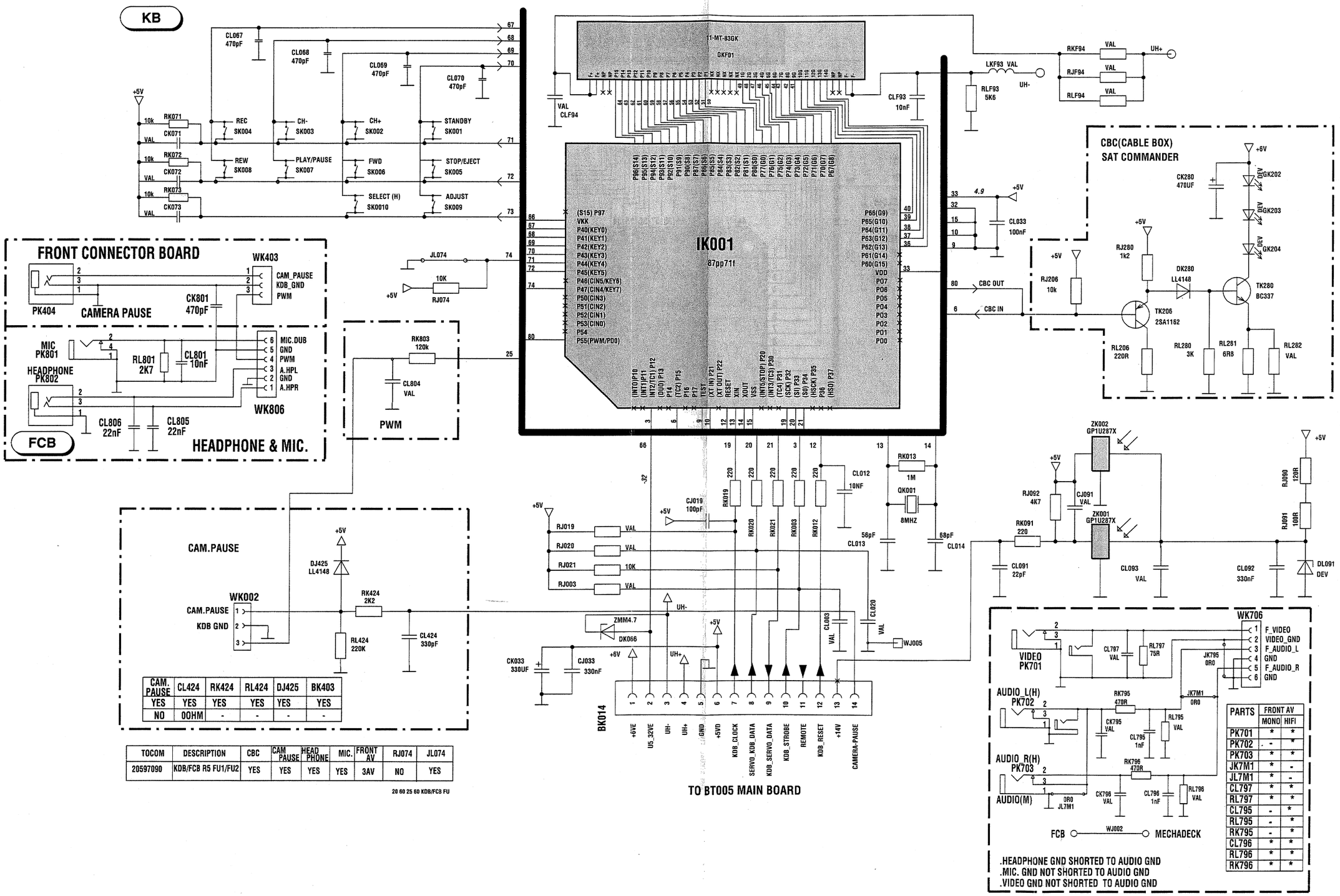




Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( TELEFUNKEN: M 9680 HIFI )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




| CAM. PAUSE | CL424 | RK424 | RL424 | DJ425 | BK403 |
|---|---|---|---|---|---|
| YES | YES | YES | YES | YES | YES |
| NO | 00HM | - | - | - | - |

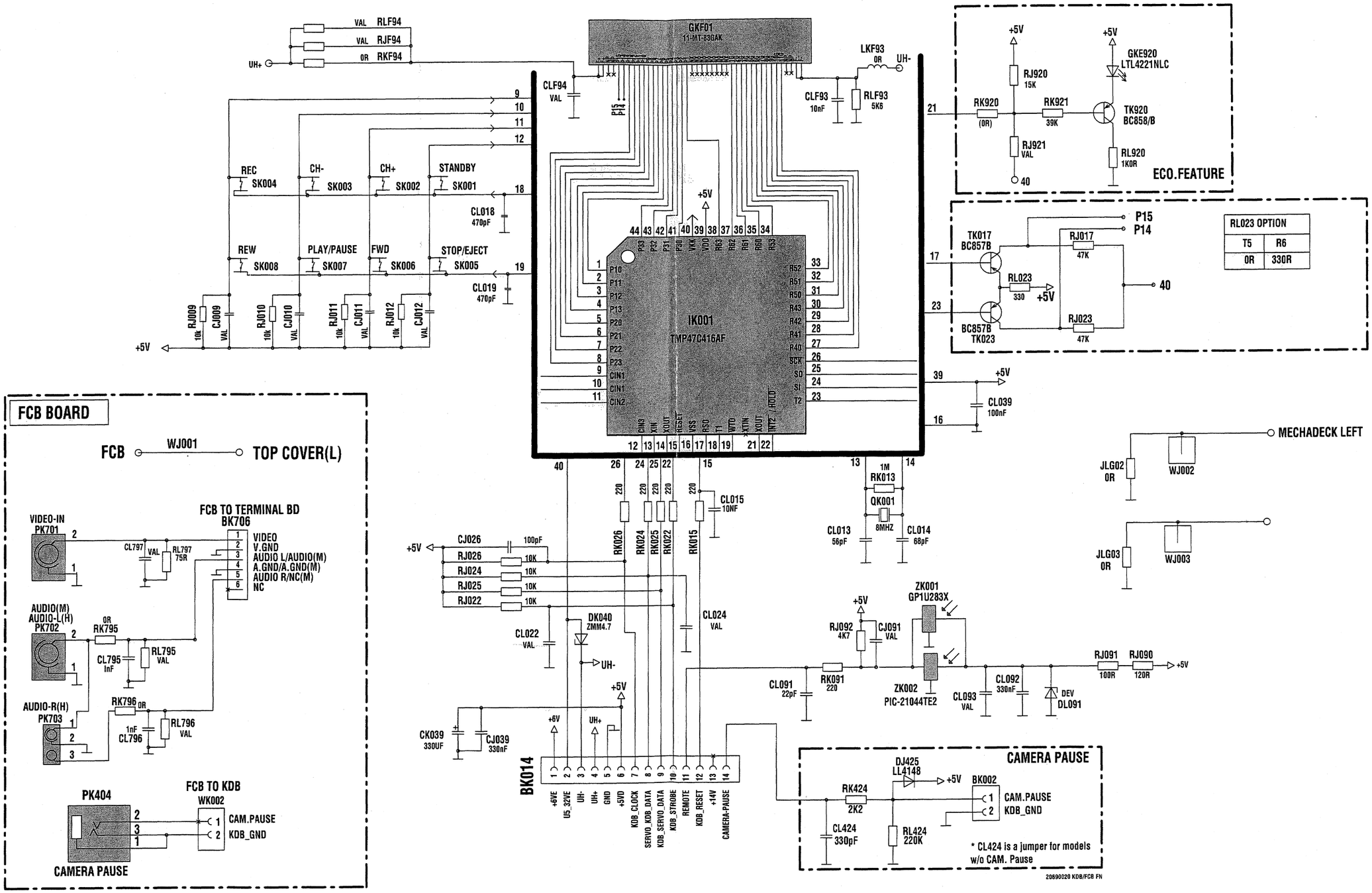
| TOCOM | DESCRIPTION | CBC | CAM PAUSE | HEAD PHONE | MIC. | FRONT AV | RJ074 | JL074 |
|---|---|---|---|---|---|---|---|---|
| 20597090 | KDB/FCB R5 FU1/FU2 | YES | YES | YES | YES | 3AV | NO | YES |

20 60 25 60 KDB/FCB FU

| PARTS | FRONT AV | |
|---|---|---|
| | MONO | HIFI |
| PK701 | * | * |
| PK702 | - | * |
| PK703 | * | * |
| JK7M1 | * | - |
| JL7M1 | * | - |
| CL797 | * | * |
| RL797 | * | * |
| CL795 | - | * |
| RL795 | - | * |
| RK795 | - | * |
| CL796 | * | * |
| RL796 | * | * |
| RK796 | * | * |

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( SABA: VR 8087 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

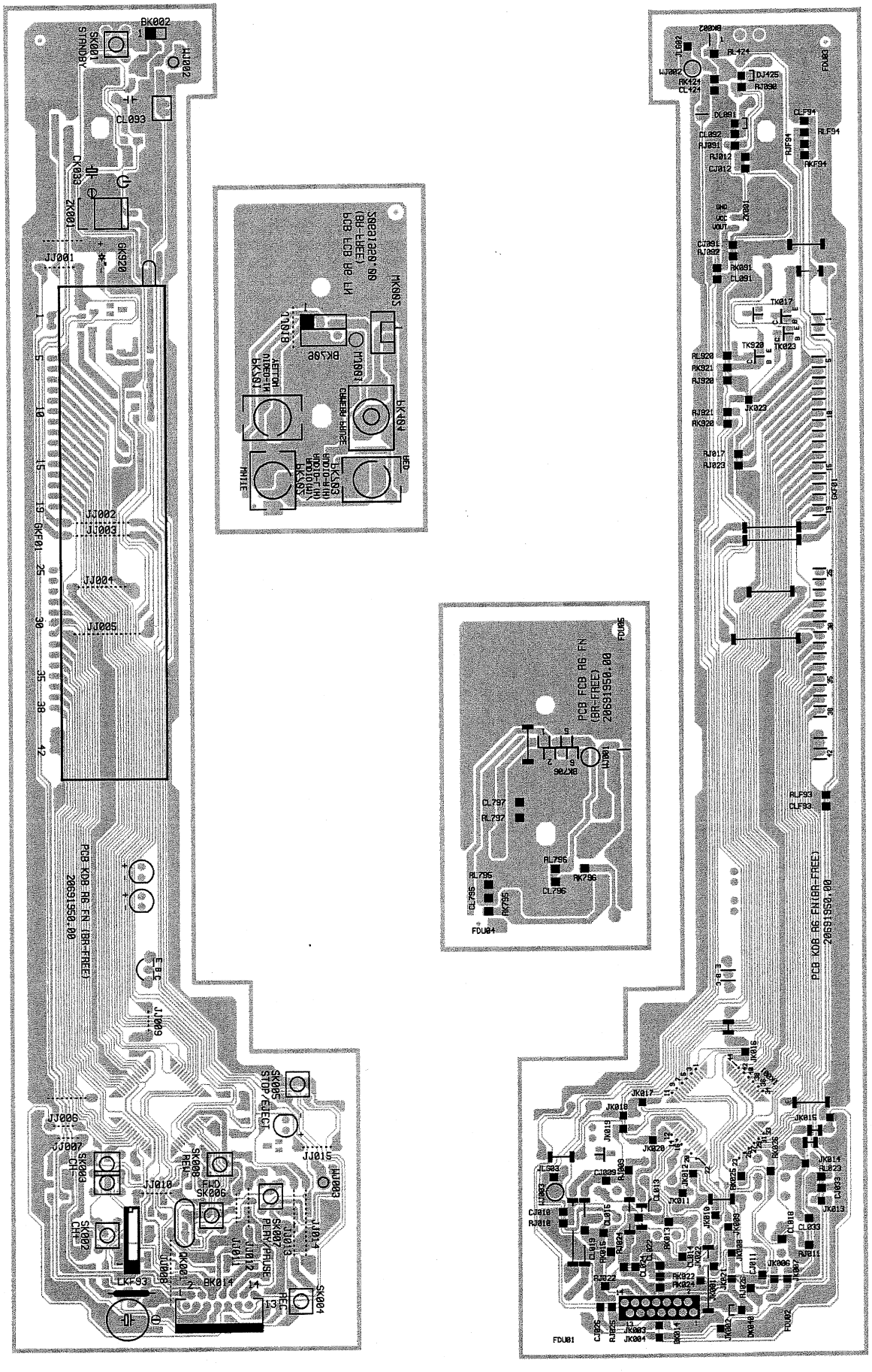



| TOCOM | DESCRIPTION | CAM.PAUSE | FAV | MODEL | ECO | RL023 | WJ002 | JLG02 | TOOL |
|---|---|---|---|---|---|---|---|---|---|
| 20699840 | EQU KDB R6 FN1 | NO | NO | T5000 | NO | 0R | NO | NO | 97-3B |
| 20734180 | EQU KDB R6 FN2 | NO | NO | R6000 | YES | 330R | YES | YES | 97-3B |

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(SABA: VR8087)**

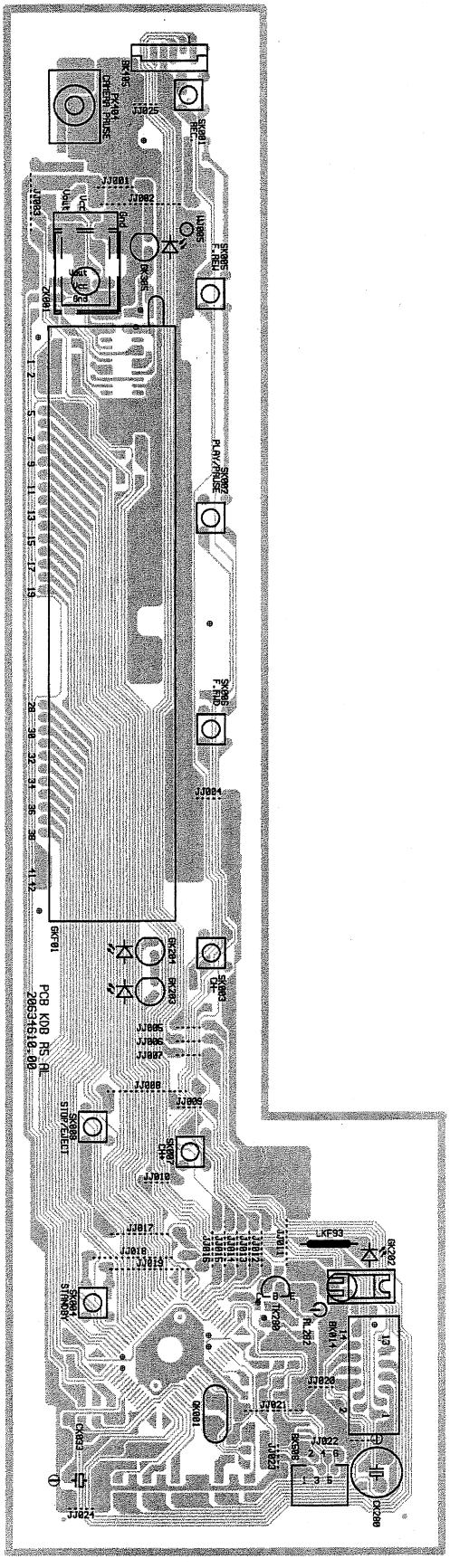
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

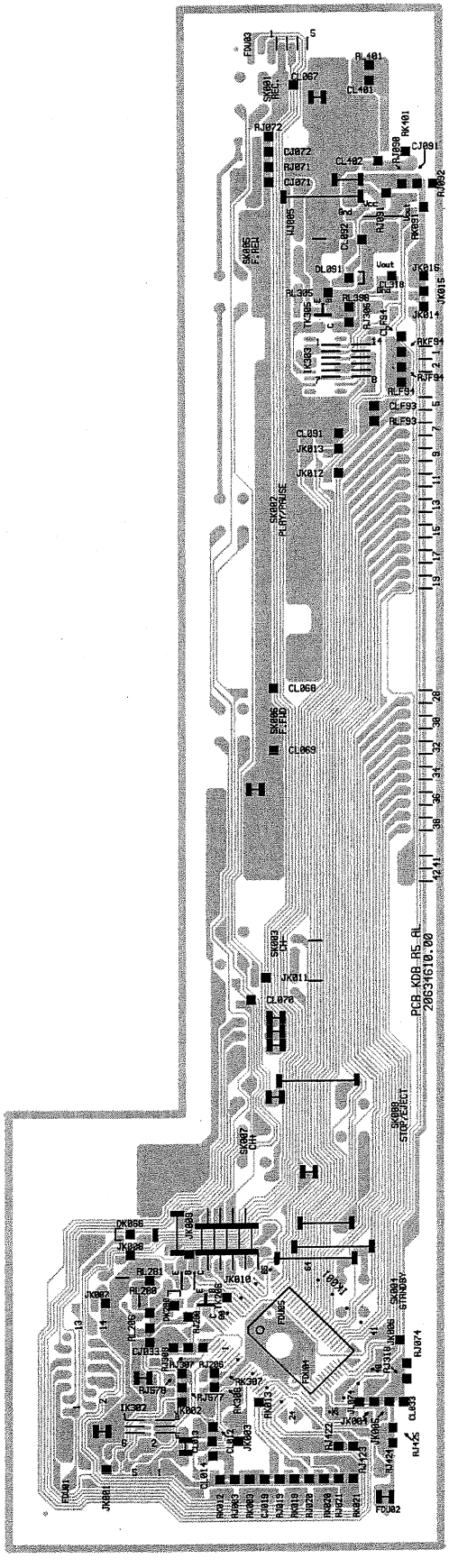


# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(NORMENDE : V 3450 SV)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

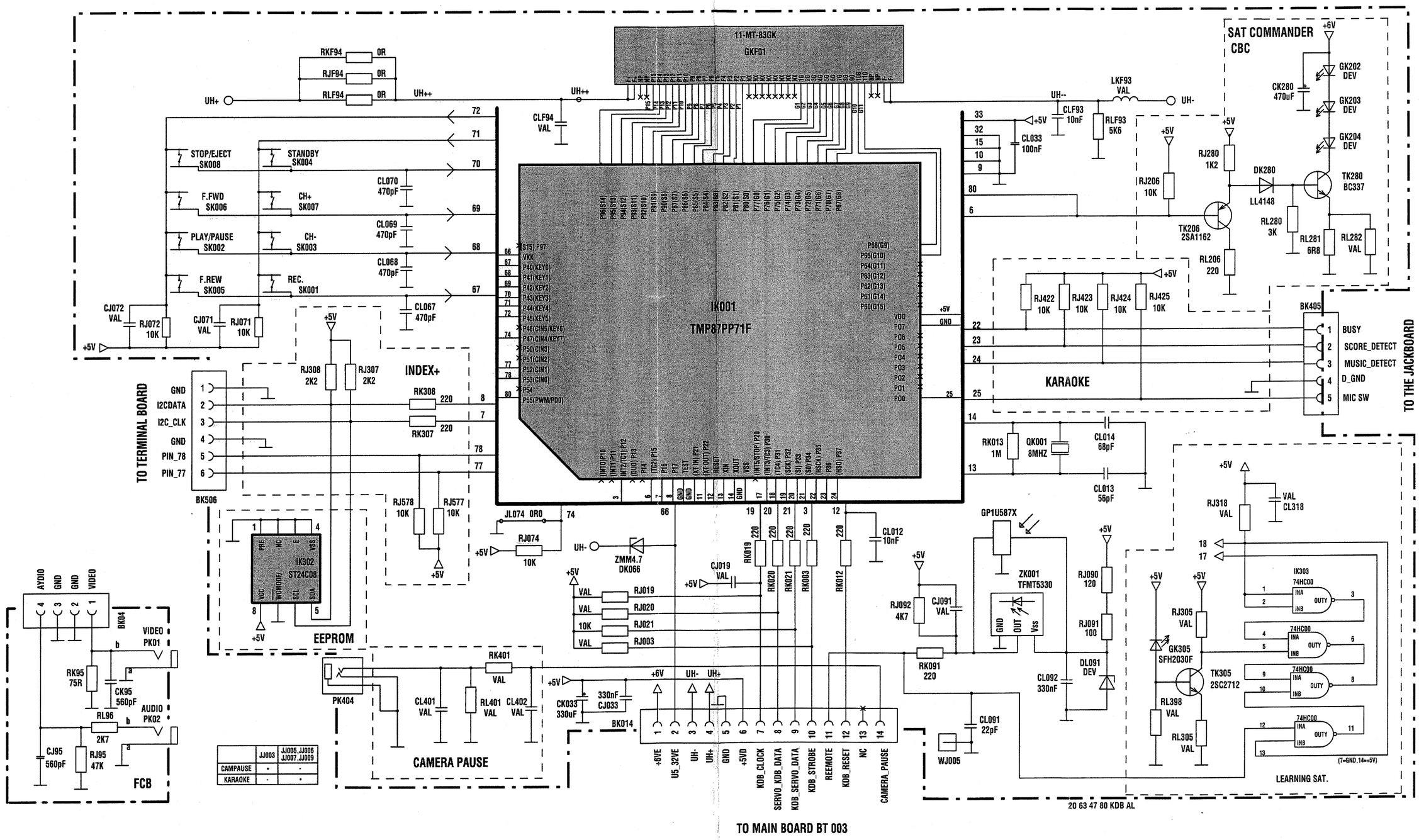



Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( NORMENDE: V 3450 SV )

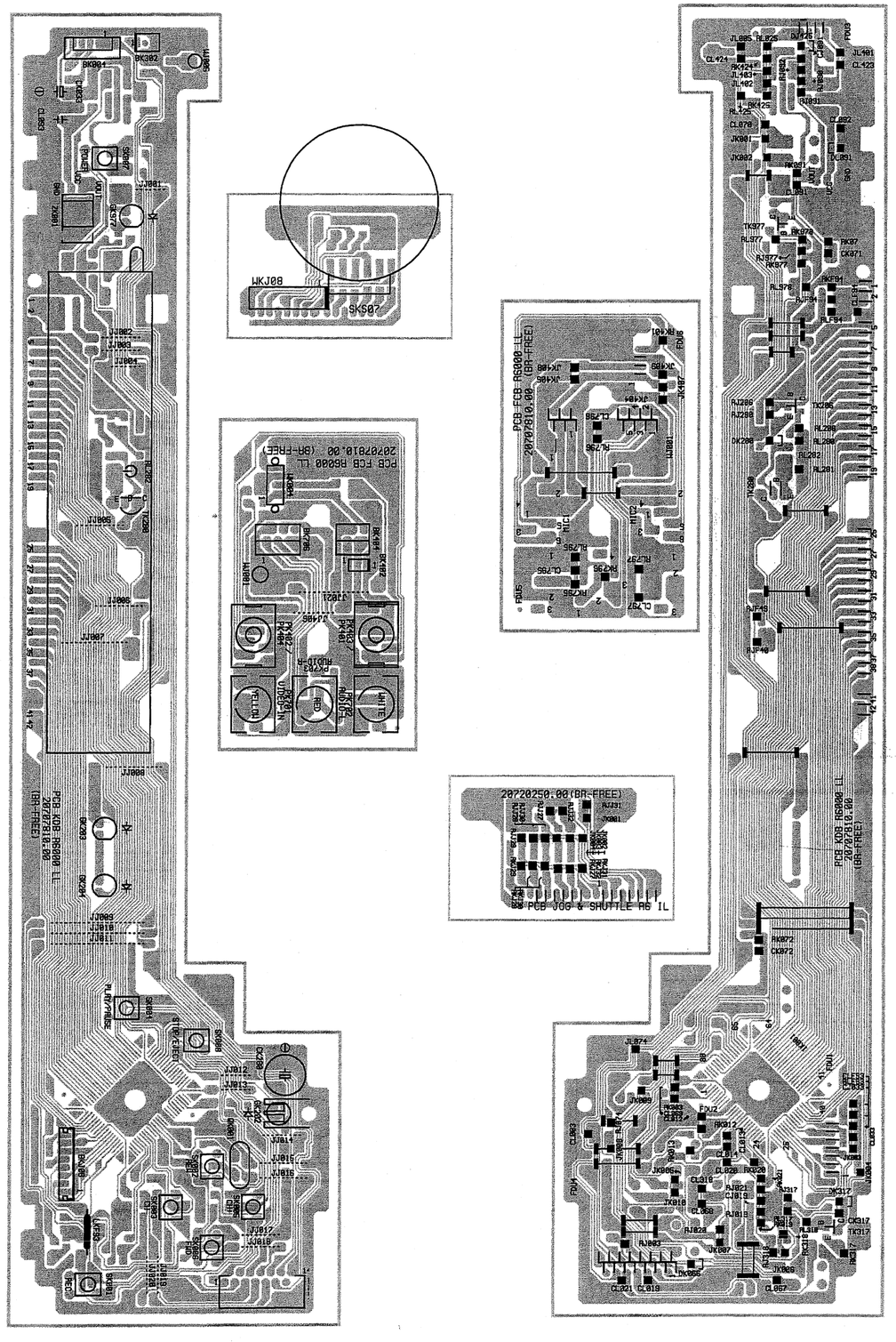
SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



## KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(THOMSON : VPH 6751)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

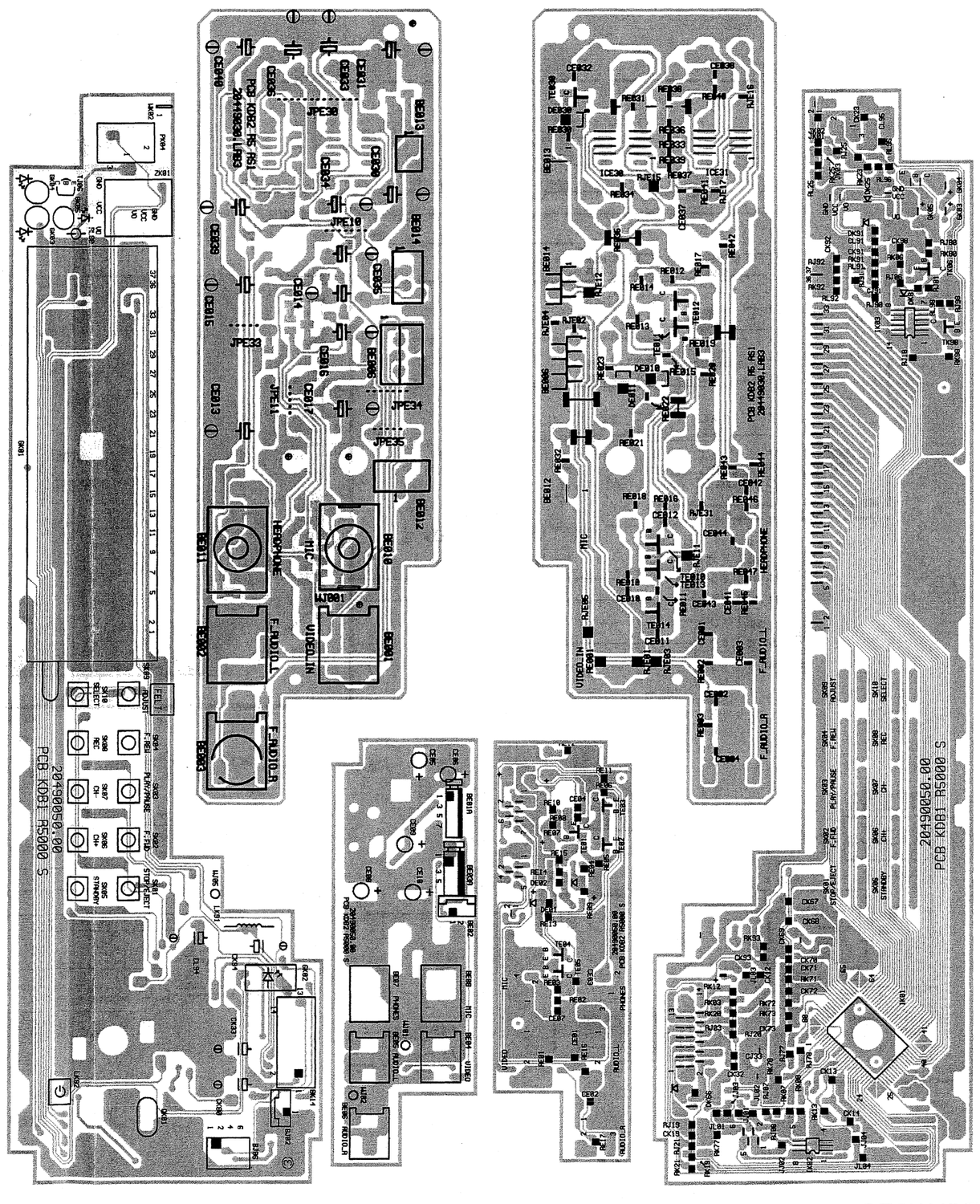





## KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **( TELEFUNKEN : M 9571 HIFI )**

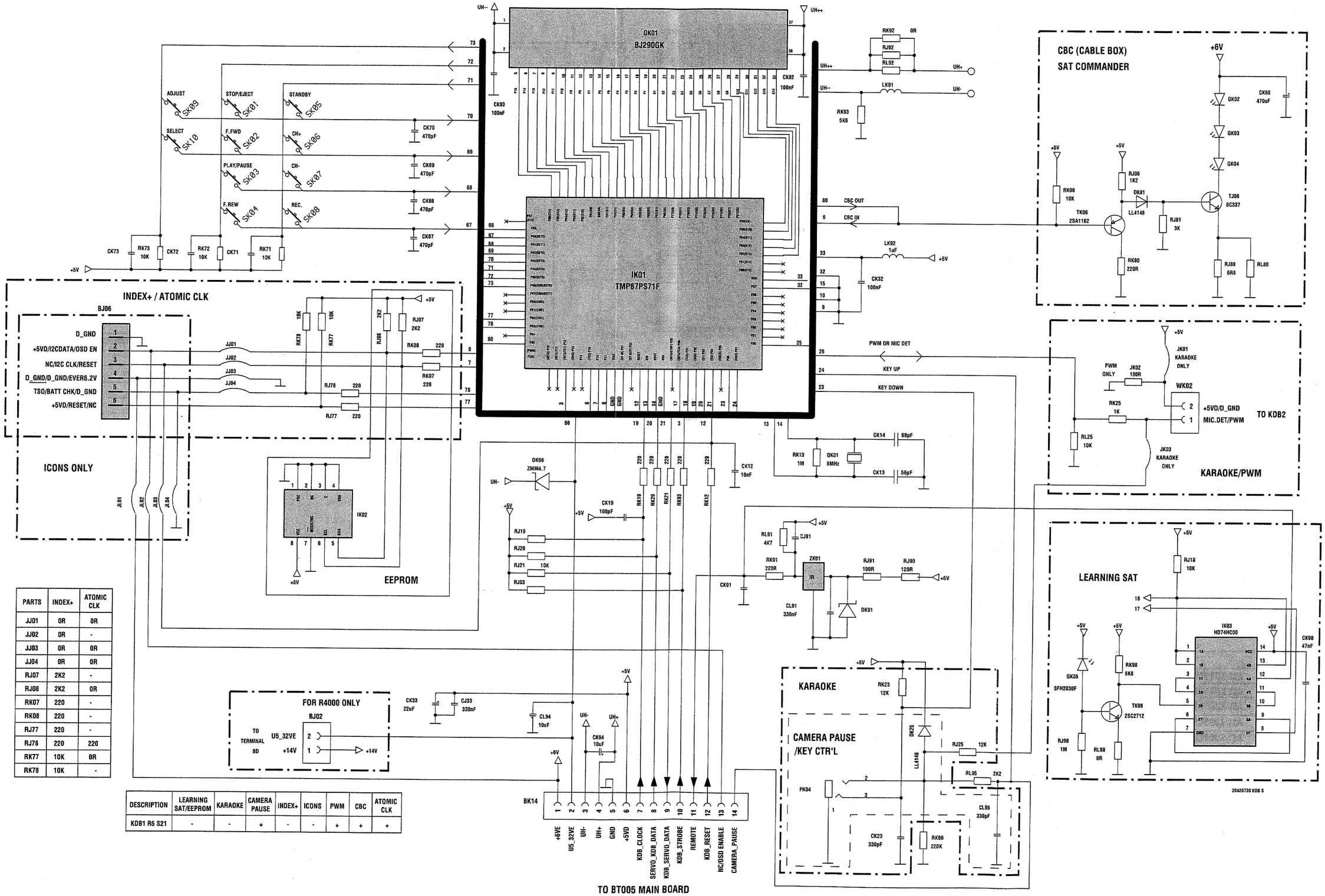
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( TELEFUNKEN: M 9571 HIFI )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

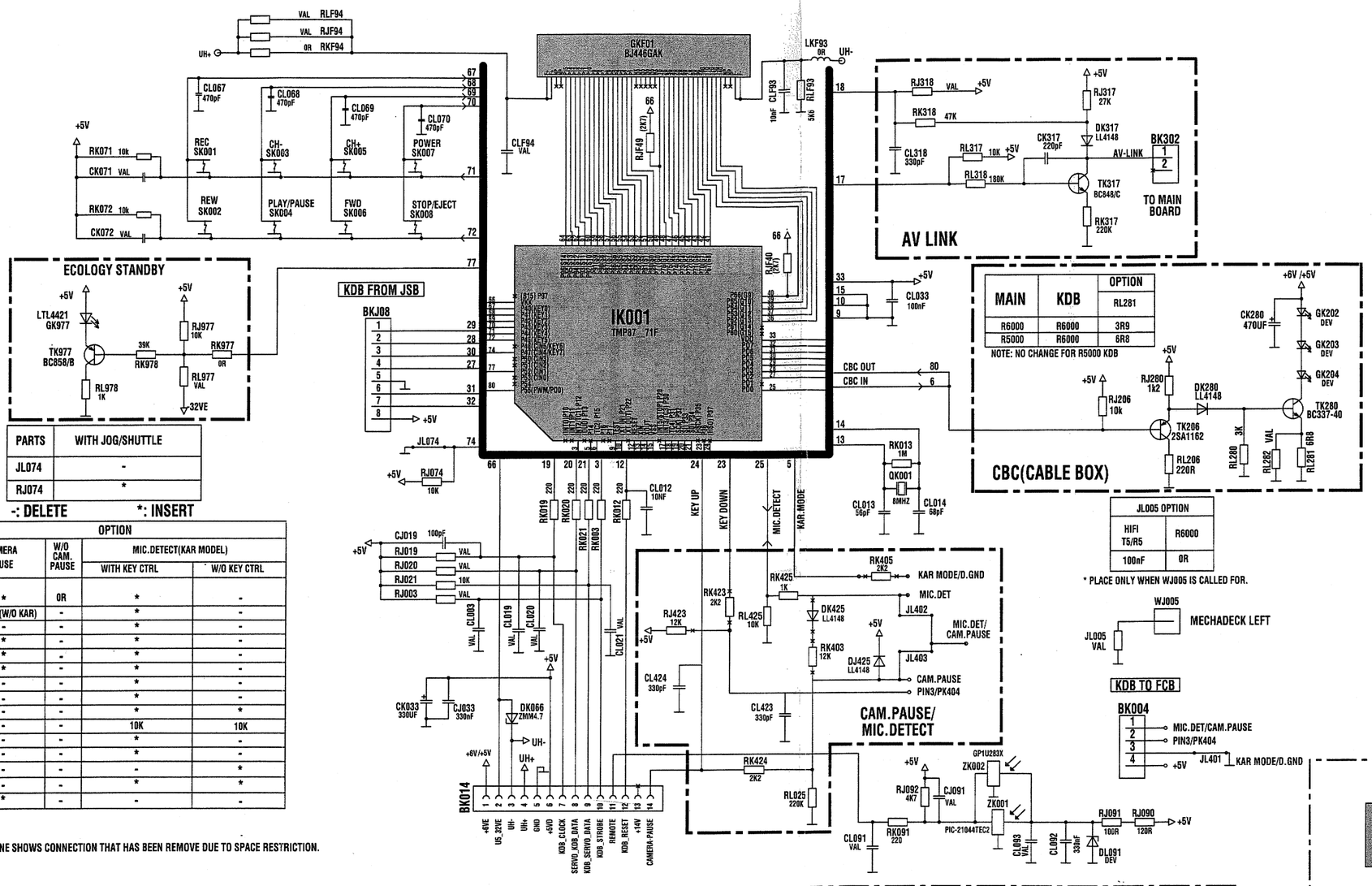



| PARTS | INDEX+ | ATOMIC CLK |
|---|---|---|
| JJ01 | 0R | 0R |
| JJ02 | 0R | - |
| JJ03 | 0R | 0R |
| JJ04 | 0R | 0R |
| RJ07 | 2K2 | - |
| RJ08 | 2K2 | 0R |
| RK07 | 220 | - |
| RK08 | 220 | - |
| RJ77 | 220 | - |
| RJ78 | 220 | 220 |
| RK77 | 10K | 0R |
| RK78 | 10K | - |

| DESCRIPTION | LEARNING SAT/EEPROM | KARAOKE | CAMERA PAUSE | INDEX+ | ICONS | PWM | CBC | ATOMIC CLK |
|---|---|---|---|---|---|---|---|---|
| KDB1 R5 S21 | - | - | + | - | - | + | + | + |

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6751 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




| MAIN | KDB | OPTION RL281 |
|---|---|---|
| R6000 | R6000 | 3R9 |
| R5000 | R6000 | 6R8 |

NOTE: NO CHANGE FOR R5000 KDB

| PARTS | WITH JOG/SHUTTLE |
|---|---|
| JL074 | - |
| RJ074 | * |

-: DELETE *: INSERT

| PARTS | OPTION | | | |
|---|---|---|---|---|
| | CAMERA PAUSE | W/O CAM. PAUSE | MIC.DETECT(KAR MODEL) WITH KEY CTRL | MIC.DETECT(KAR MODEL) W/O KEY CTRL |
| CL424 | * | 0R | * | - |
| CL423 | 0R (W/O KAR) | - | * | - |
| DK425 | - | - | * | - |
| DJ425 | * | - | * | - |
| RK424 | * | - | * | - |
| RL025 | * | - | * | - |
| RK403 | - | - | * | - |
| RK405 | - | - | * | - |
| RK425 | - | - | * | * |
| RL425 | - | - | 10K | 10K |
| RJ423 | - | - | * | - |
| RK423 | - | - | * | - |
| JL401 | - | - | - | * |
| JL402 | - | - | * | * |
| JL403 | * | - | - | - |

| JL005 OPTION | |
|---|---|
| HIFI T5/R5 | R6000 |
| 100nF | 0R |

* PLACE ONLY WHEN WJ005 IS CALLED FOR.

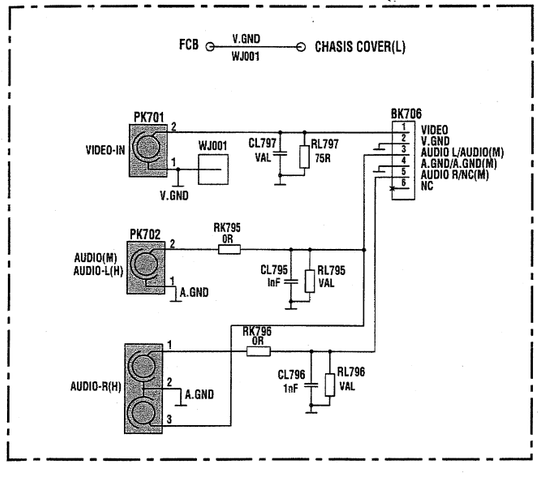
| | KAR MODELS | CAM.PAUSE/MIC.DUB | CONNECTORS |
|---|---|---|---|
| MIC1 | PK401 | NO | BK404 + WK004 |
| MIC2 | PK402 | NO | |
| CAM.PAUSE | NO | PK404 | WK004 + BK402 |
| MIC.DUB | NO | PK403 | |
| RK401 | YES | NO | |
| JK404 | YES | NO | |
| JK405 | YES | NO | |
| JJ406 | YES | NO | |
| JK407 | NO | YES | |
| JK408 | NO | YES | |
| JK409 | NO | YES | |

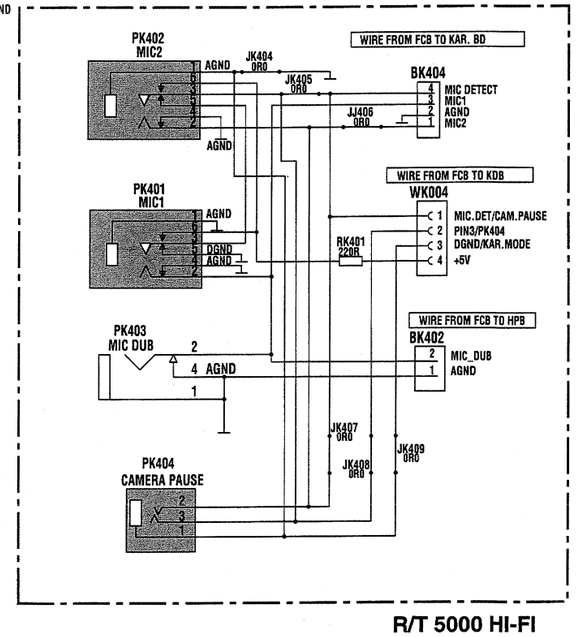
*NOTE : DOTTED LINE SHOWS CONNECTION THAT HAS BEEN REMOVE DUE TO SPACE RESTRICTION.

| TOCOM NO | DESCRIPTION | CAM.P | MIC | FAV | JOG/SHUTT | CBC | KDB S/W | ECO | MODELS |
|---|---|---|---|---|---|---|---|---|---|
| 20734370 | ASY KDB/FCB/JSB R6 LL1/LL2/IL1 | YES | - | 3 | YES | - | R6-N6T | - | VPH6751 |
| 20744030 | ASY KDB/FCB/JSB R6 LL2/LL3/IL1 | YES | 1 | 3 | YES | YES | R6-R6F | - | VPH6787 |
| 20722770 | ASY KDB/FCB/JSB R6 LL3/LL1/IL1 | YES | - | 2 | YES | YES | R6-R2T | YES | VP4780 VP4781 |
| 20748670 | ASY KDB/FCB/JSB R6 JL1/JL1 | YES | - | 2 | NO | YES | R6-R6F | YES | VP2757 |
| 20791310 | ASY KDB/FCB/JSB R6 JL2/JL1 | YES | - | 2 | NO | YES | R6-R2T | YES | VP2751 |

20723930 KDB/FCB (LL&JL)

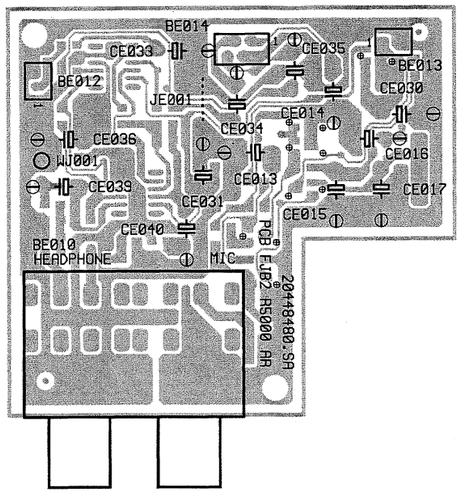
| OPTION | | |
|---|---|---|
| | HIFI | MONO |
| PK701 | PK701 | |
| PK702 | PK702 | |
| PK703 | - | |
| BK706 | BK704 | |
| CL797 | - | - |
| RL797 | YES | YES |
| RK795 | YES | YES |
| CL795 | - | - |
| RL795 | YES | YES |
| RK796 | YES | - |
| CL796 | YES | - |
| RL796 | - | - |



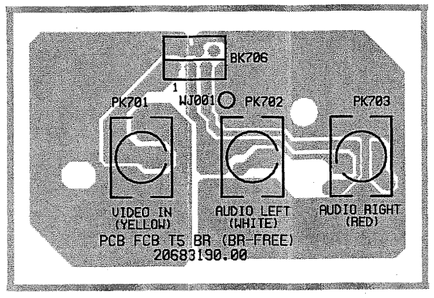



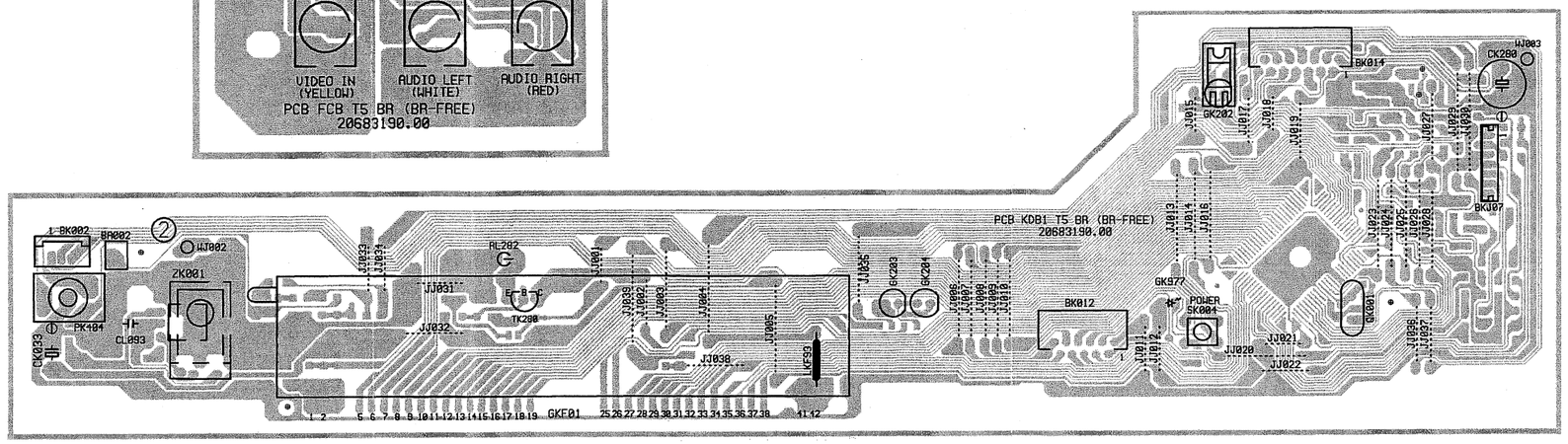
# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(THOMSON : VPH 6780 - VPH 6790)**

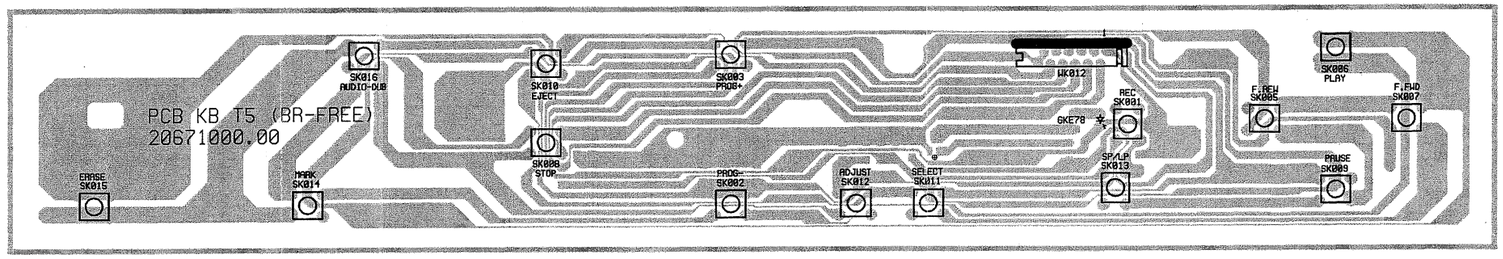
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

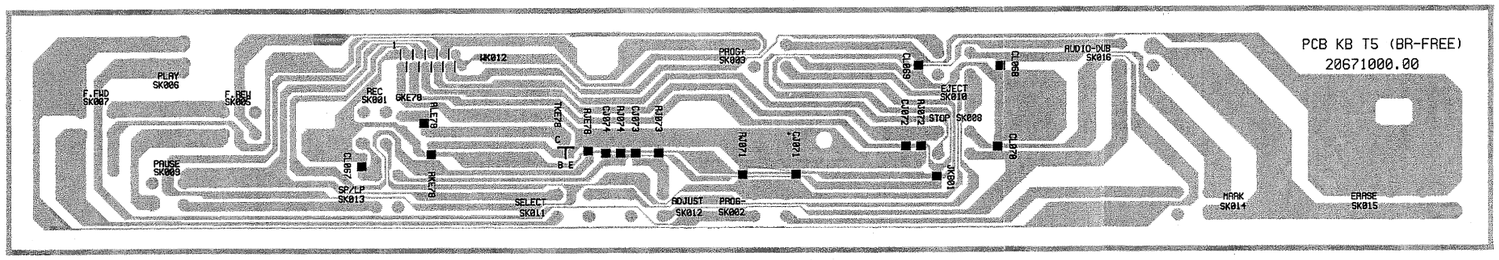


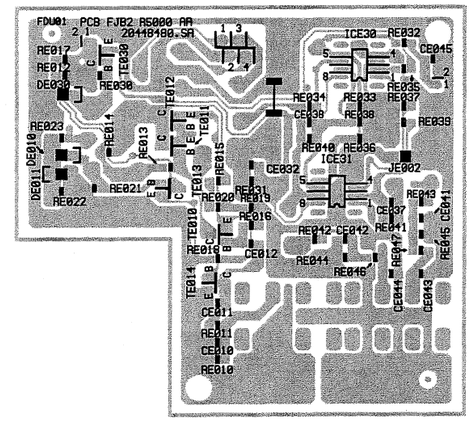

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

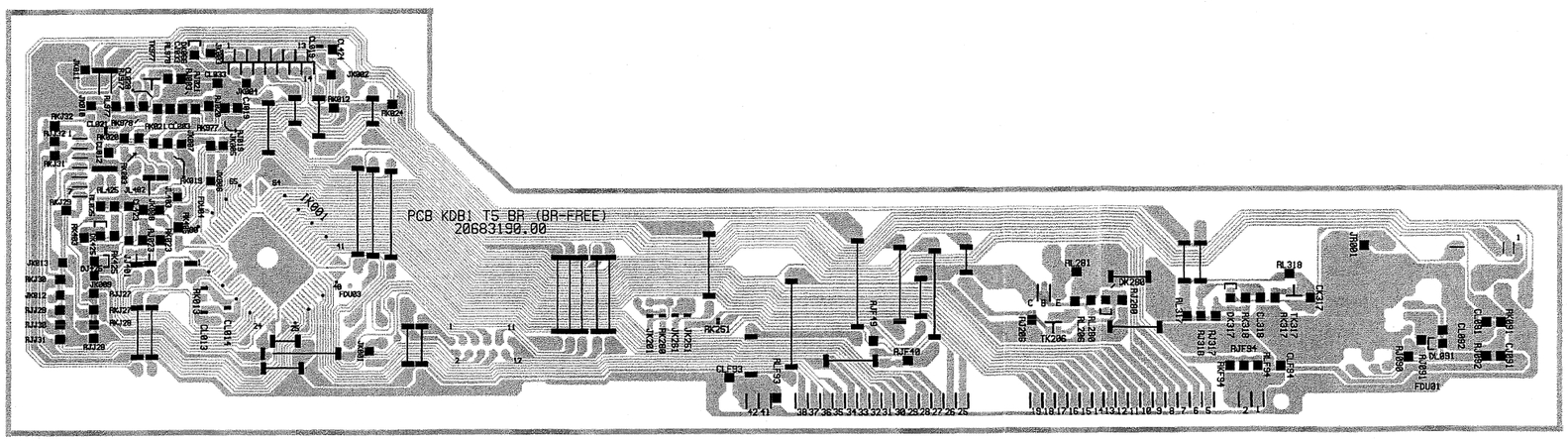


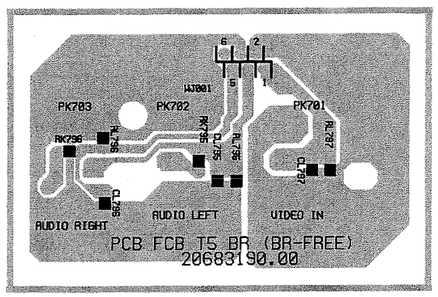



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6780 - VPH 6790 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

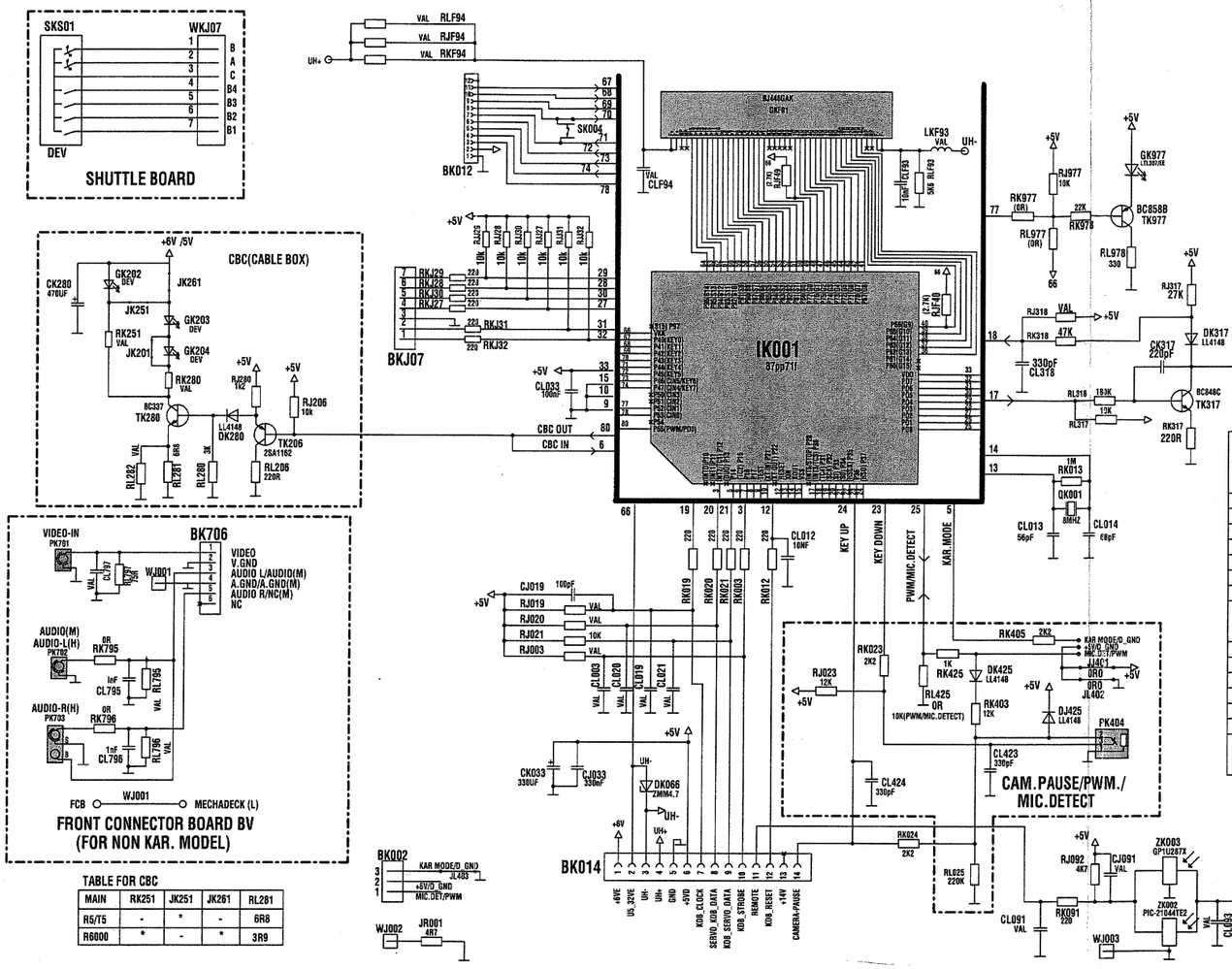
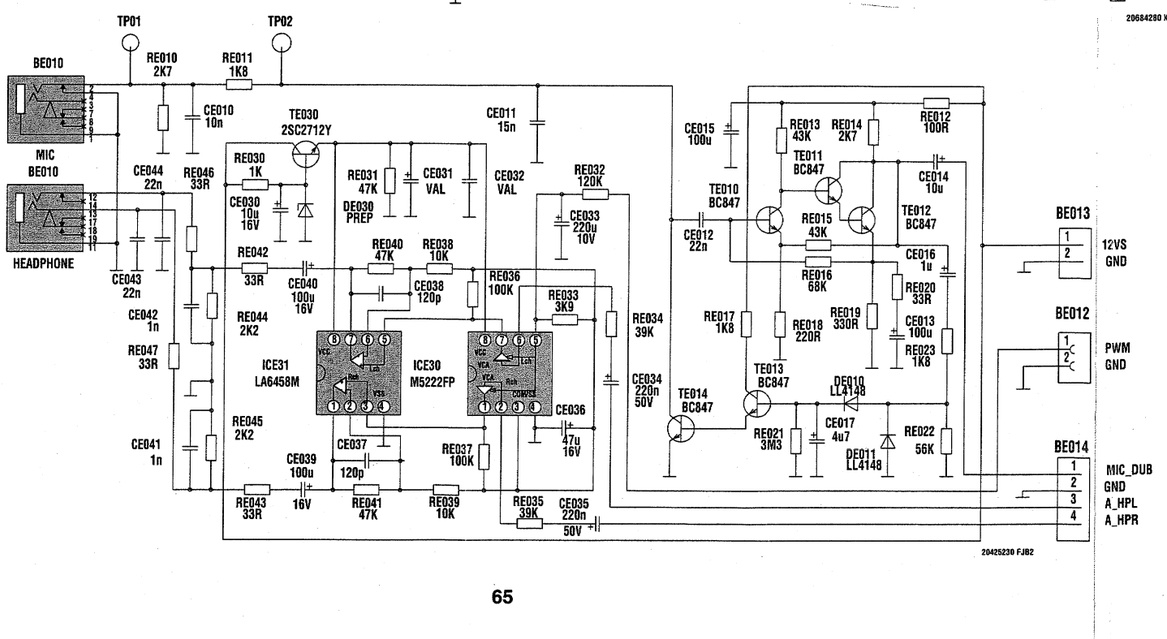



TABLE FOR CBC

| MAIN | RK251 | JK251 | JK261 | RL281 |
|---|---|---|---|---|
| R5/T5 | - | * | - | 6R8 |
| R6000 | * | - | * | 3R9 |

| PARTS | OPTION | | | | | |
|---|---|---|---|---|---|---|
| | CAMERA PAUSE | W/O CAM PAUSE | PWM | MIC.DETECT | NON KAR. MODELS ASIA | NON KAR. MODELS EUROPE |
| PK404 | * | - | - | - | - | - |
| CL424 | * | 0R | - | - | - | - |
| CL423 | - | - | - | * | - | - |
| DK425 | - | - | - | * | - | - |
| DJ425 | * | - | - | * | - | - |
| RL025 | * | - | - | * | * | * |
| RK403 | - | - | - | * | - | - |
| RK405 | - | - | - | - (WITHOUT KAR MODE) * (WITH KAR MODE) | - | - |
| RK425 | - | - | * | * | - | - |
| RL425 | - | - | 10K | 10K | 0R | - |
| RJ023 | - | - | - | * | - | - |
| RK023 | - | - | - | * | - | - |
| JJ401 | - | - | - | * | - | - |
| JL402 | - | - | * | - | - | - |
| JL403 | - | - | - | * (WITHOUT KAR MODE) - (WITHKAR MODE) | - | - |

-: DELETE *: INSERT






Updated 09 / 97

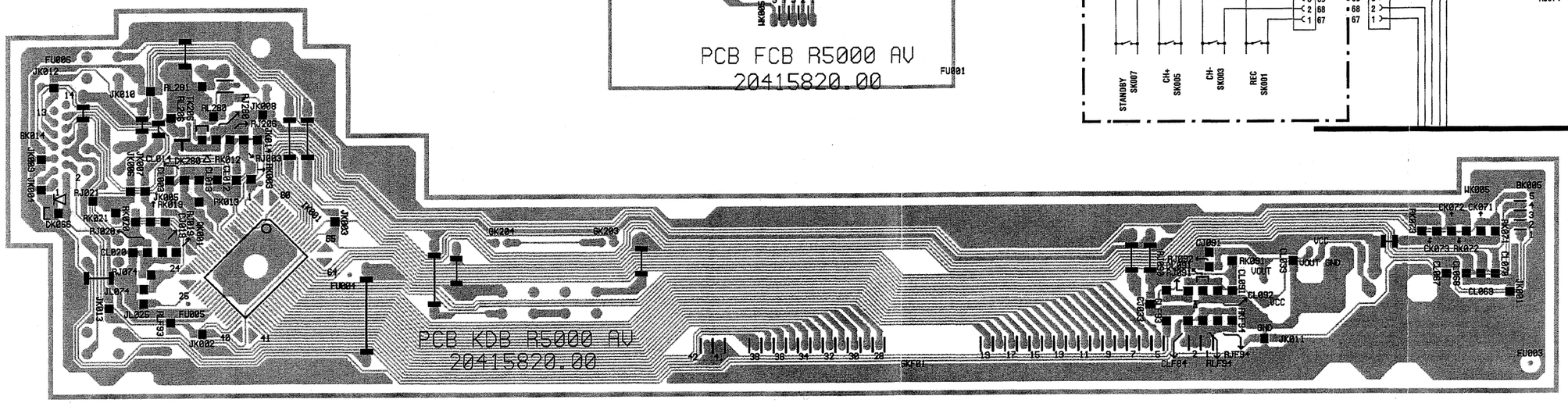


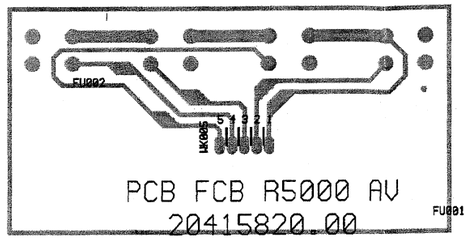
**R/T 5000 HI-FI**
First issue 08 / 95

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZA

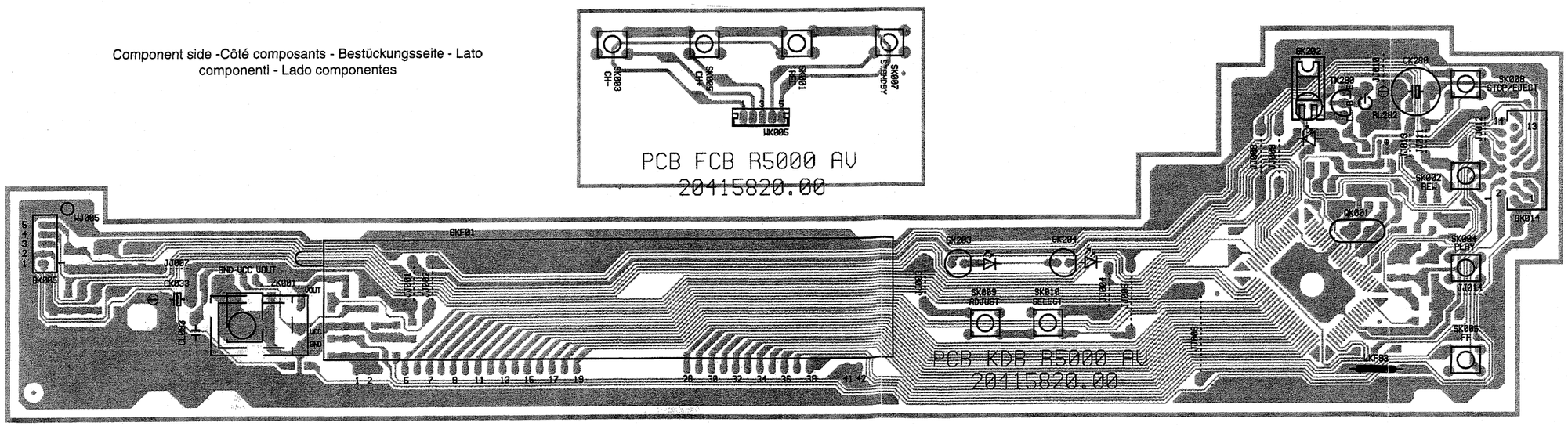
## SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



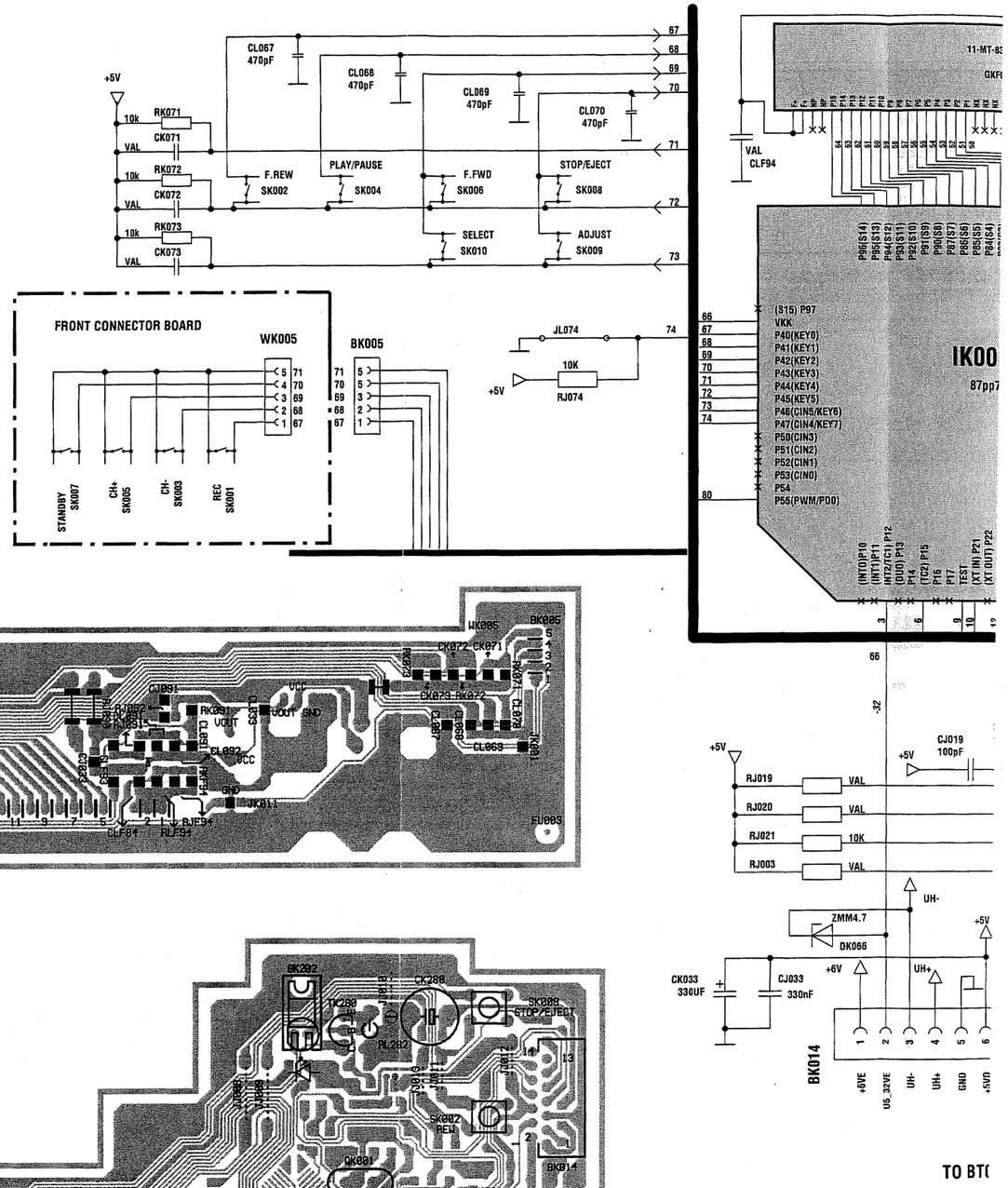




Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes



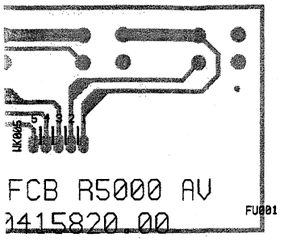


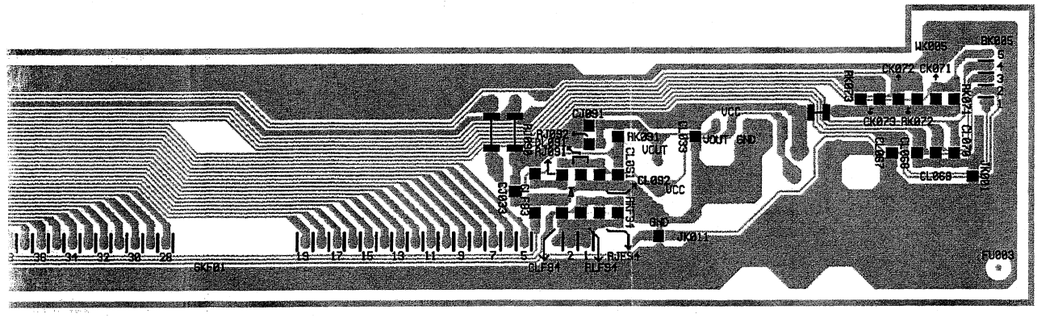




# FFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6601 )

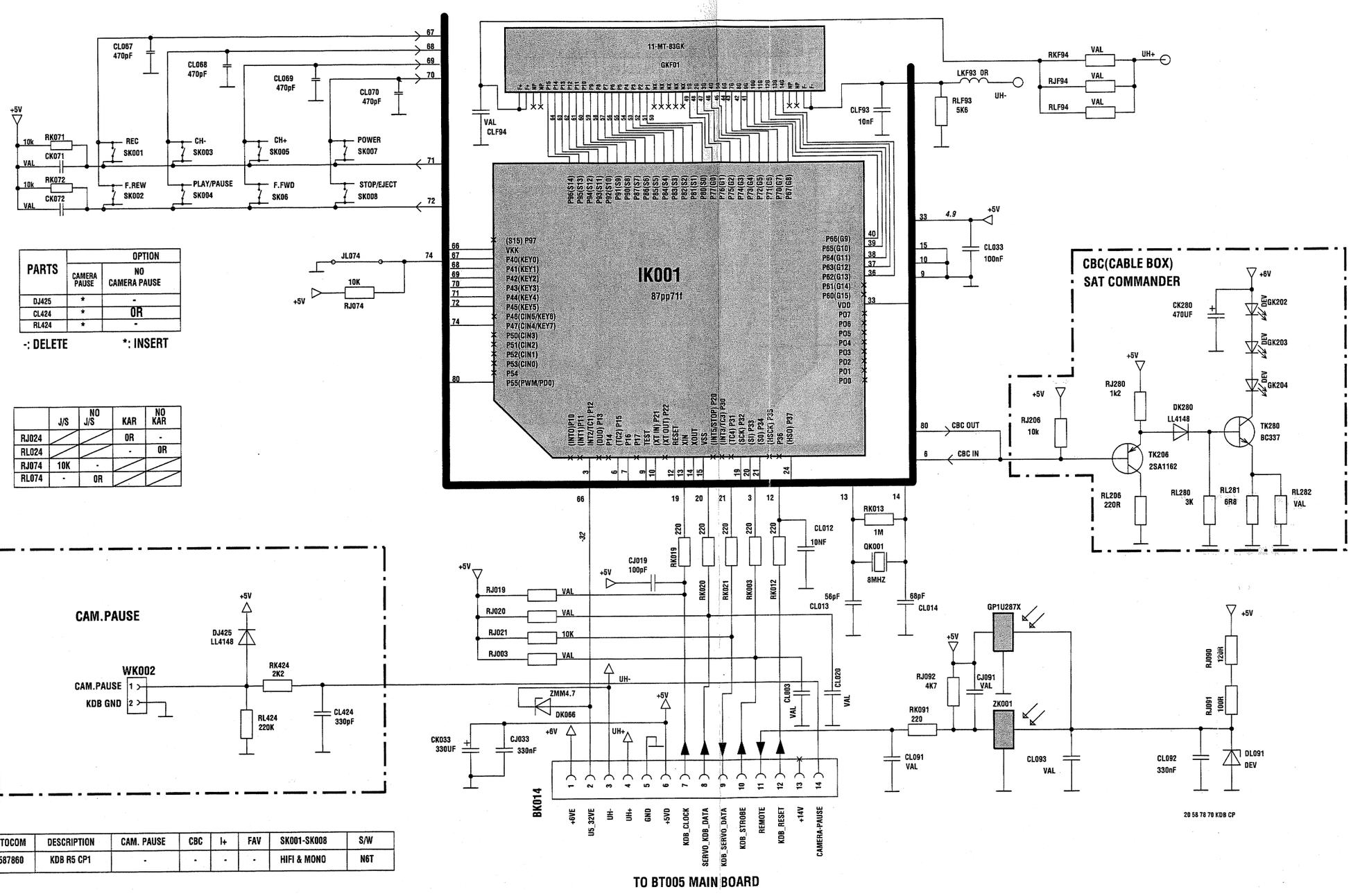
SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( SABA: VR 7081 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



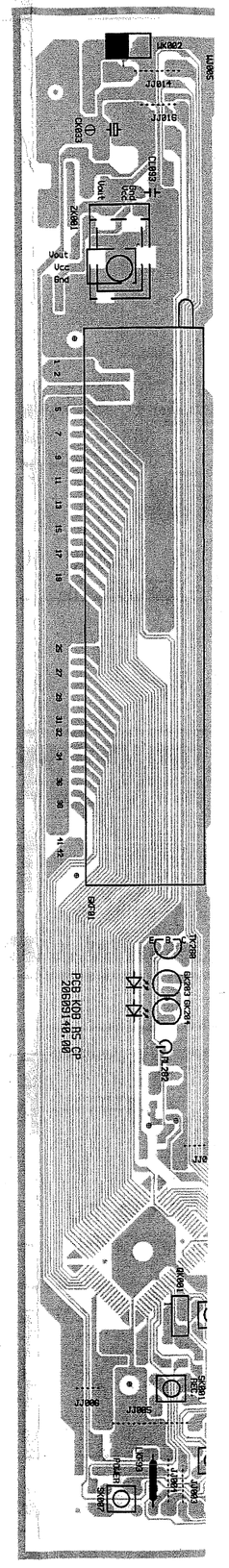

| PARTS | OPTION | |
|---|---|---|
| | CAMERA PAUSE | NO CAMERA PAUSE |
| DJ425 | * | - |
| CL424 | * | 0R |
| RL424 | * | - |

-: DELETE *: INSERT

| | J/S | NO J/S | KAR | NO KAR |
|---|---|---|---|---|
| RJ024 | | | 0R | - |
| RL024 | | | - | 0R |
| RJ074 | 10K | - | | |
| RL074 | - | 0R | | |

| TOCOM | DESCRIPTION | CAM. PAUSE | CBC | I+ | FAV | SK001-SK008 | S/W |
|---|---|---|---|---|---|---|---|
| 20587860 | KDB R5 CP1 | - | - | - | - | HIFI & MONO | N6T |

Component side -Côté composar componenti - Lado



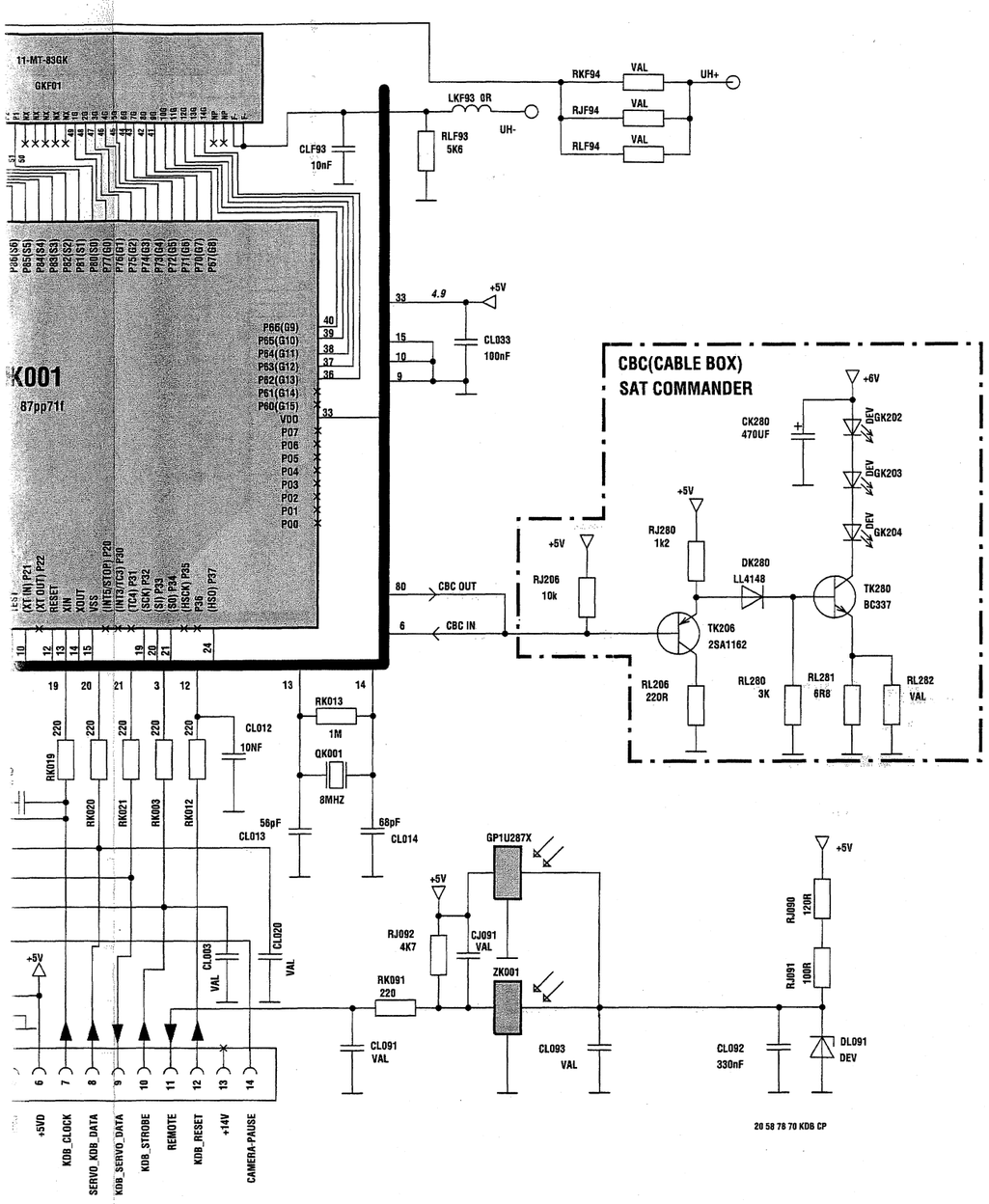




Updated

# ICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY -

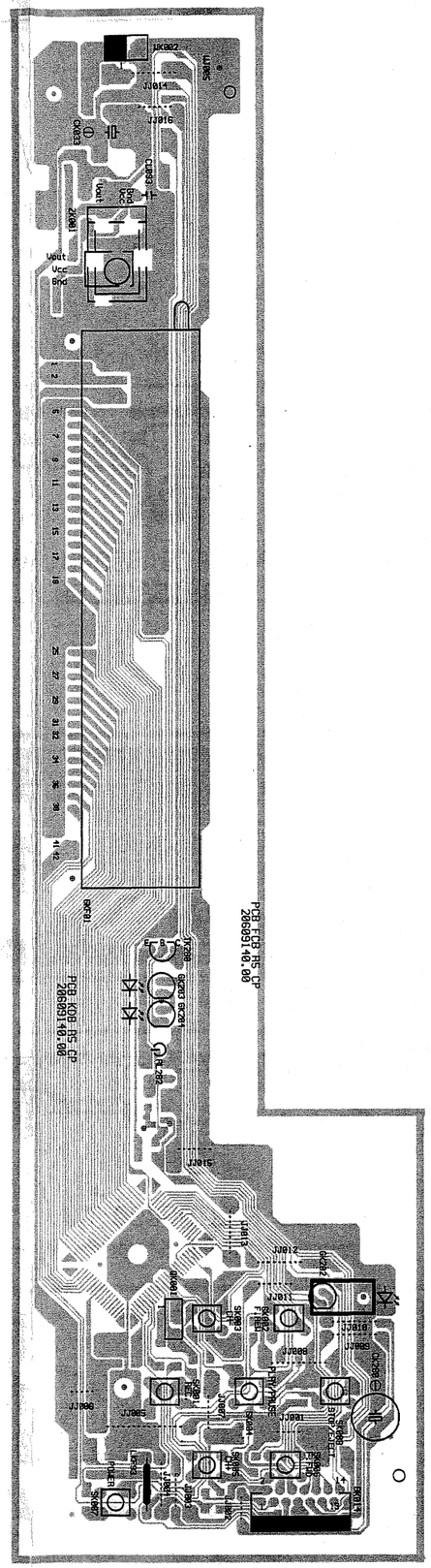
UEMA



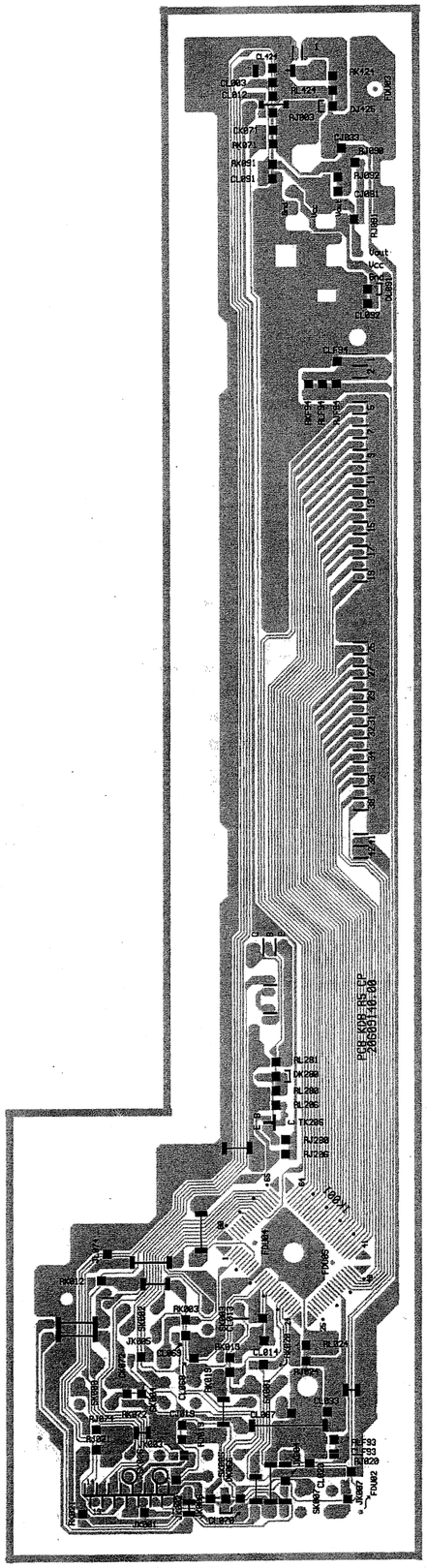

BT005 MAIN BOARD



Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

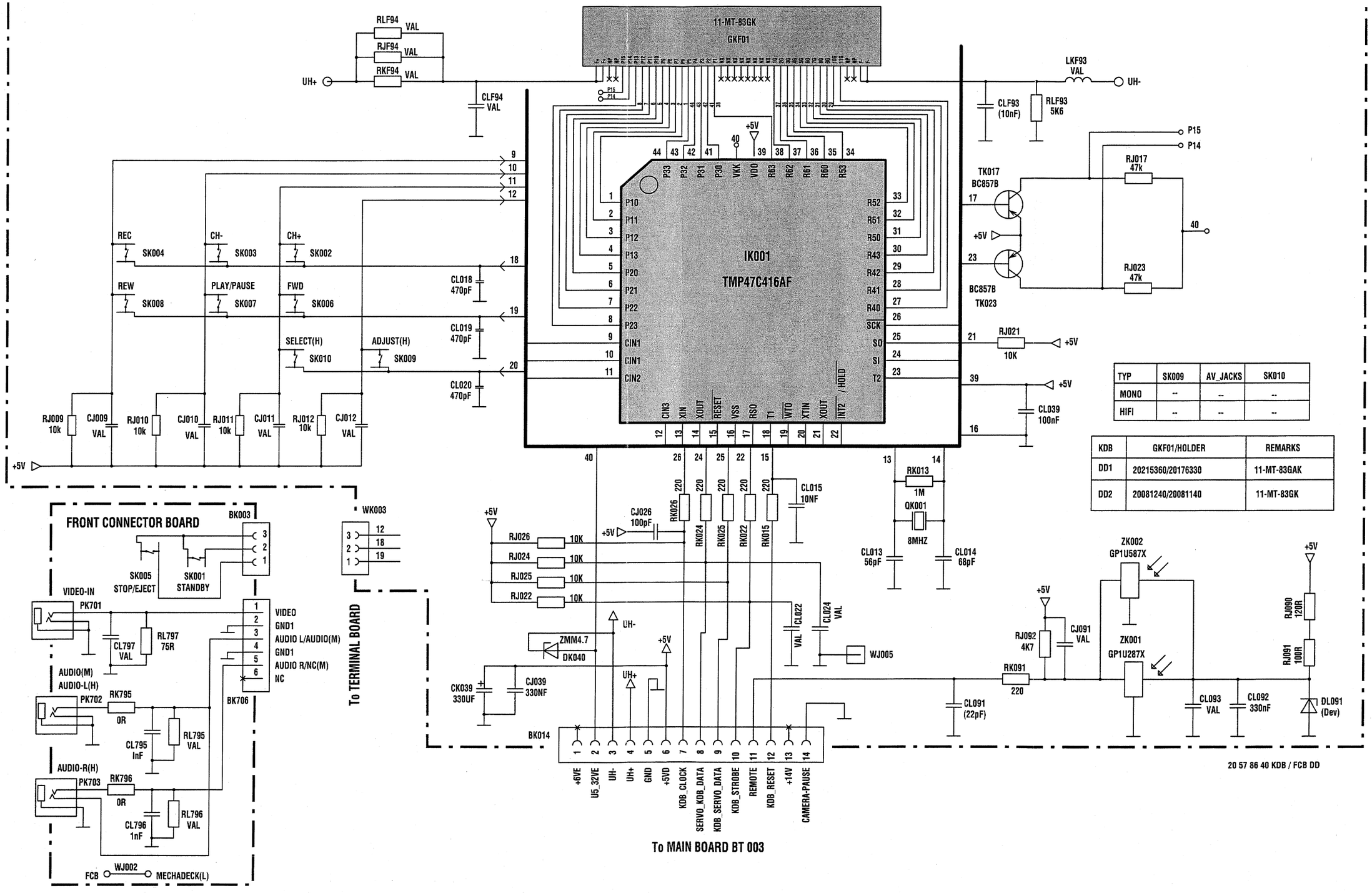


Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( TELEFUNKEN: T 8006 HIFI )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




| TYP | SK009 | AV_JACKS | SK010 |
|---|---|---|---|
| MONO | -- | -- | -- |
| HIFI | -- | -- | -- |

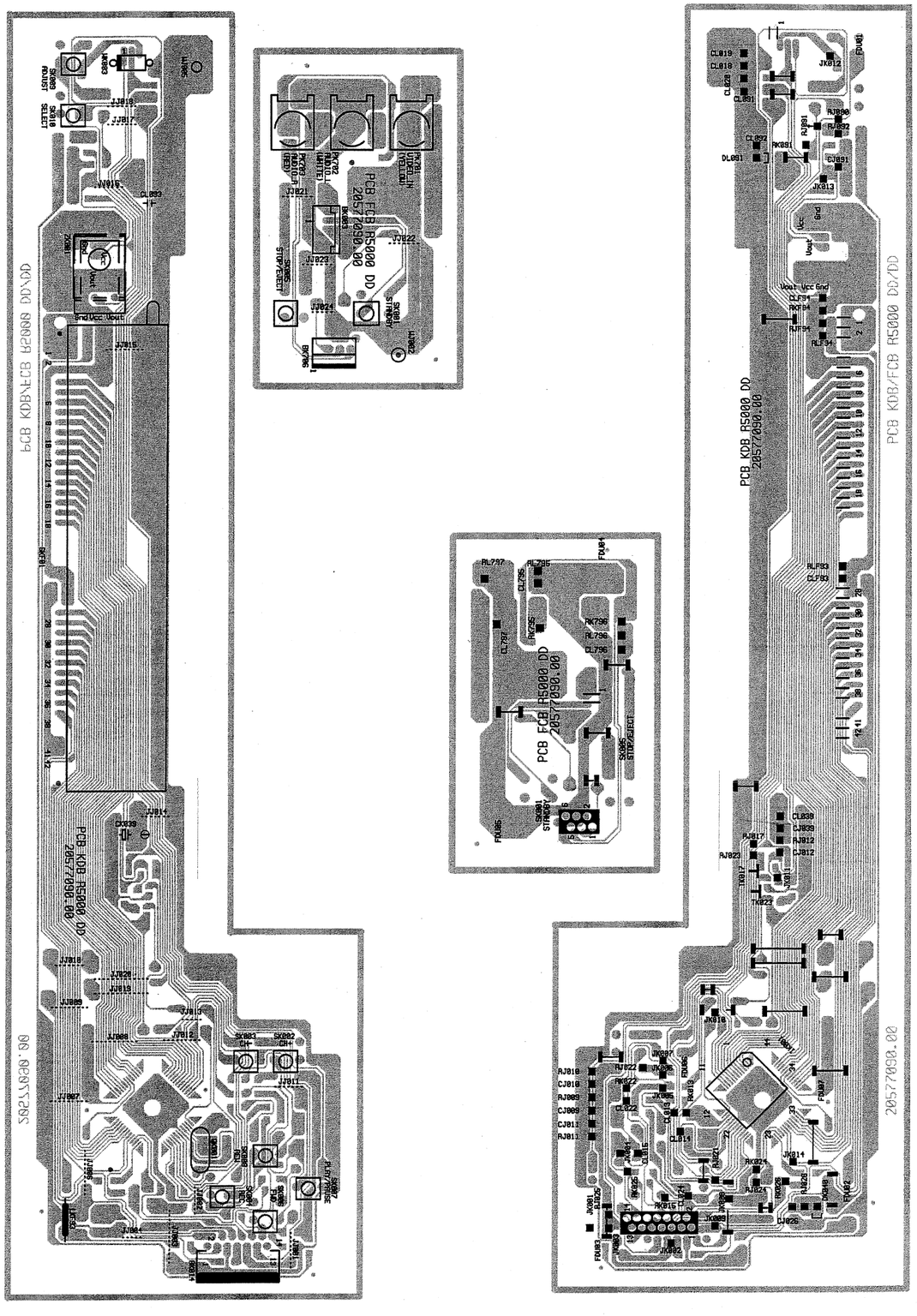
| KDB | GKF01/HOLDER | REMARKS |
|---|---|---|
| DD1 | 20215360/20176330 | 11-MT-83GAK |
| DD2 | 20081240/20081140 | 11-MT-83GK |

20 57 86 40 KDB / FCB DD

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(TELEFUNKEN : T 8006 HIFI)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

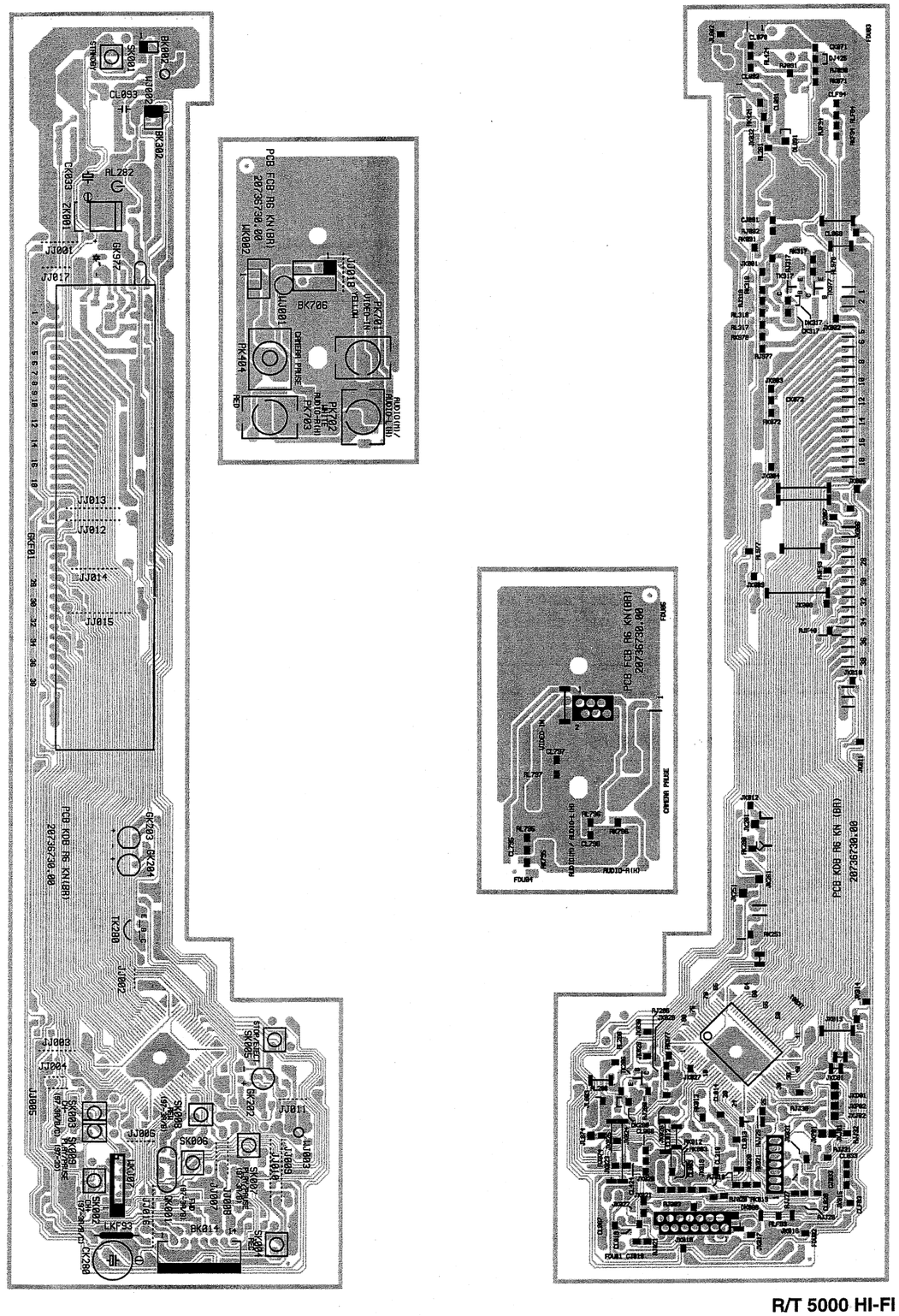





# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(SABA : VR 8083 H)**

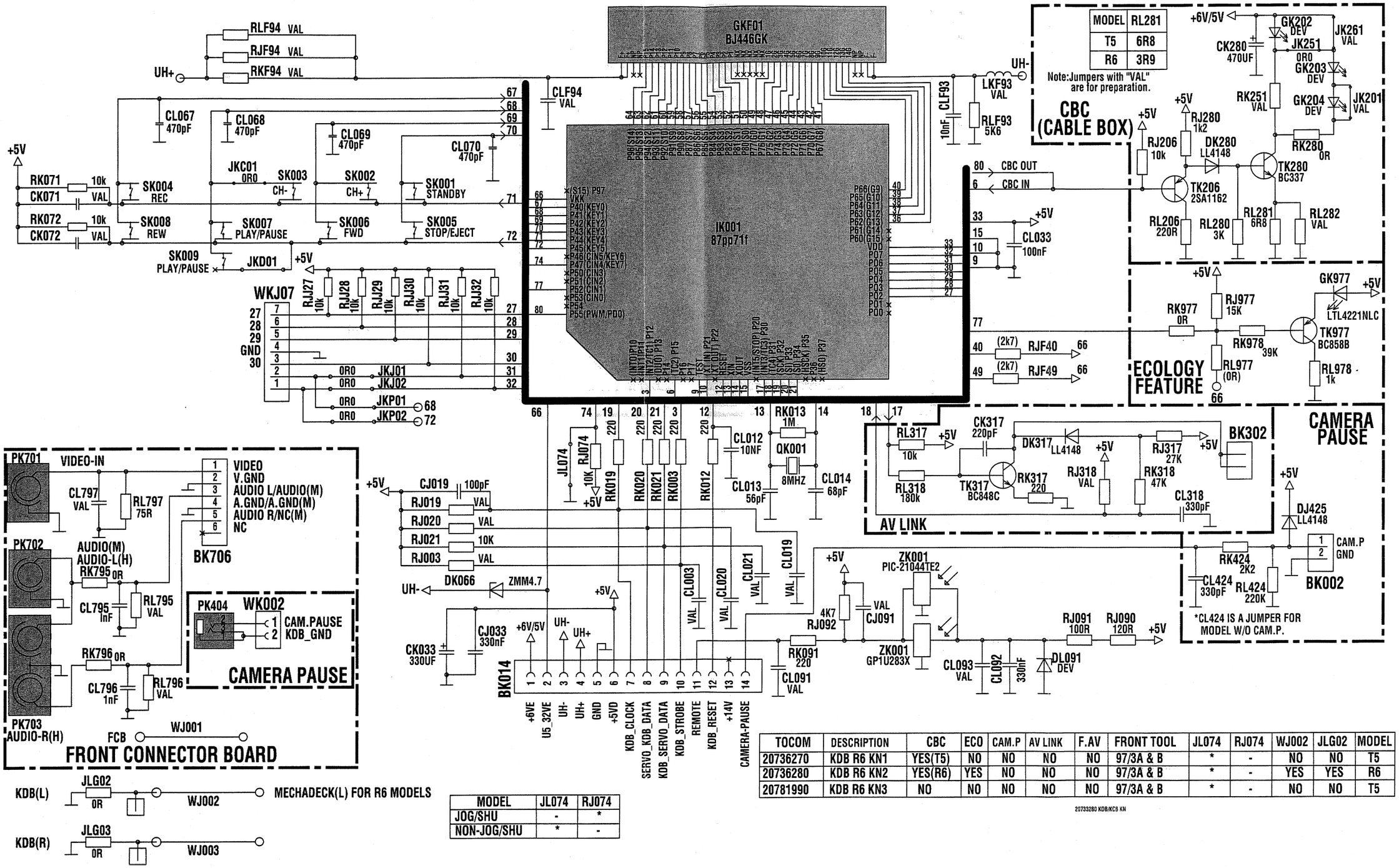
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( SABA: VR 8083 H )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



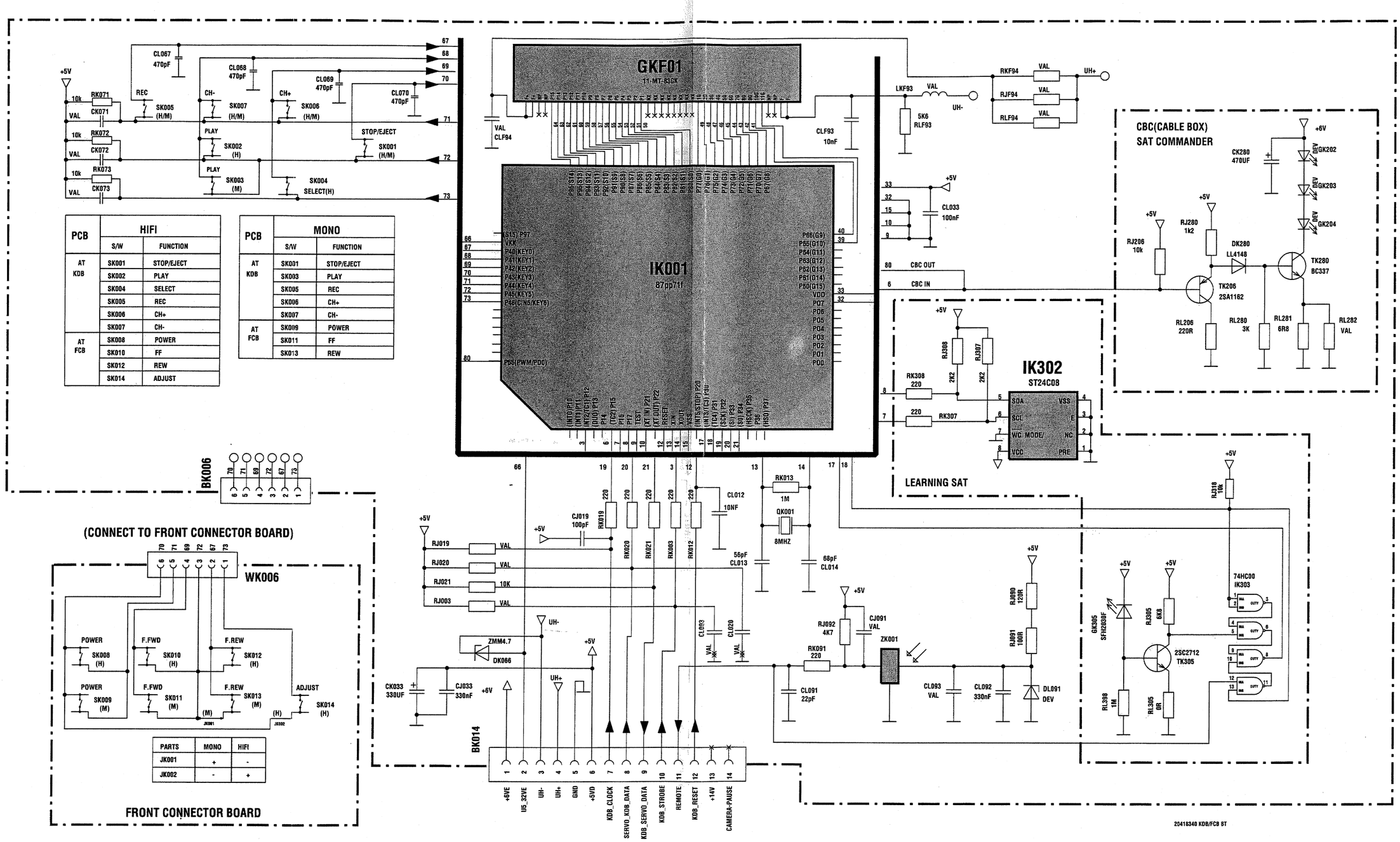

| MODEL | JL074 | RJ074 |
|---|---|---|
| JOG/SHU | - | * |
| NON-JOG/SHU | * | - |

| TOCOM | DESCRIPTION | CBC | ECO | CAM.P | AV LINK | F.AV | FRONT TOOL | JL074 | RJ074 | WJ002 | JLG02 | MODEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20736270 | KDB R6 KN1 | YES(T5) | NO | NO | NO | NO | 97/3A & B | * | - | NO | NO | T5 |
| 20736280 | KDB R6 KN2 | YES(R6) | YES | NO | NO | NO | 97/3A & B | * | - | YES | YES | R6 |
| 20781990 | KDB R6 KN3 | NO | NO | NO | NO | NO | 97/3A & B | * | - | NO | NO | T5 |

20733280 KDB/KC5 KN

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( SABA: VR 6081 )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




| PCB | HIFI | |
|---|---|---|
| | S/W | FUNCTION |
| AT KDB | SK001 | STOP/EJECT |
| | SK002 | PLAY |
| | SK004 | SELECT |
| | SK005 | REC |
| | SK006 | CH+ |
| | SK007 | CH- |
| AT FCB | SK008 | POWER |
| | SK010 | FF |
| | SK012 | REW |
| | SK014 | ADJUST |

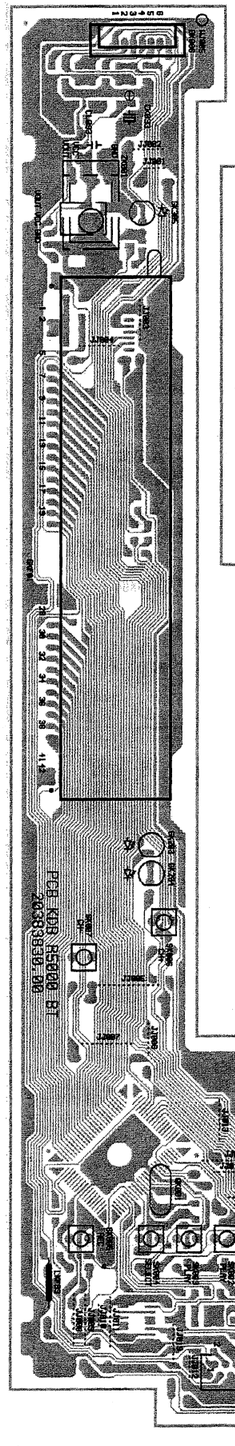
| PCB | MONO | |
|---|---|---|
| | S/W | FUNCTION |
| AT KDB | SK001 | STOP/EJECT |
| | SK003 | PLAY |
| | SK005 | REC |
| | SK006 | CH+ |
| | SK007 | CH- |
| AT FCB | SK009 | POWER |
| | SK011 | FF |
| | SK013 | REW |

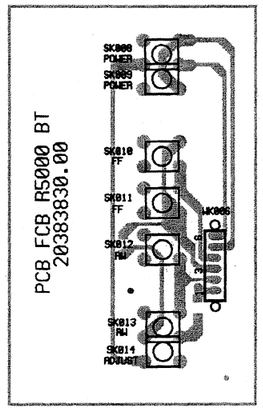
| PARTS | MONO | HIFI |
|---|---|---|
| JK001 | + | - |
| JK002 | - | + |

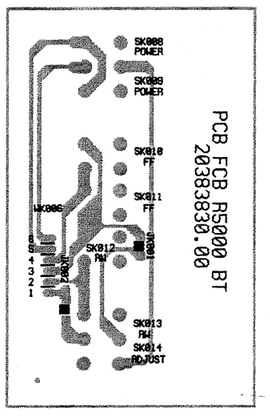
| TOCOM NO. | DESCRIPTION | CBC | L.SAT |
|---|---|---|---|
| 20383690 | KDB/FCB R5 BT1/BT1 | + | - |
| 20399450 | KDB/FCB R5 BT6/BT2 | - | - |
| 20443060 | KDB/FCB R5 BT8/BT1 | - | - |

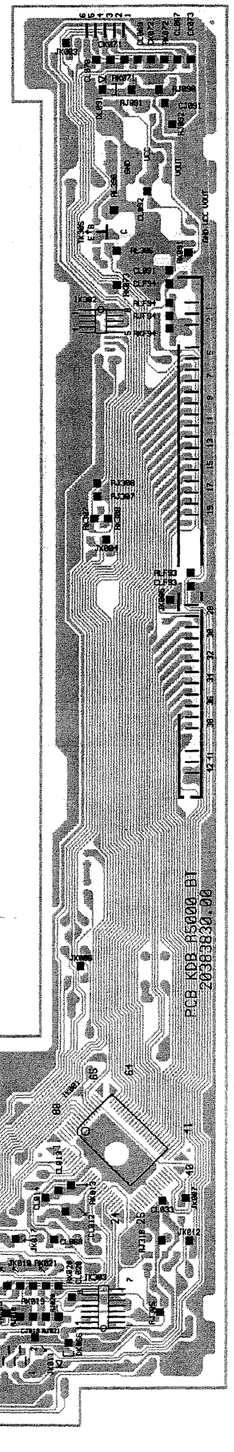
# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(SABA : VR 6081)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes





Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

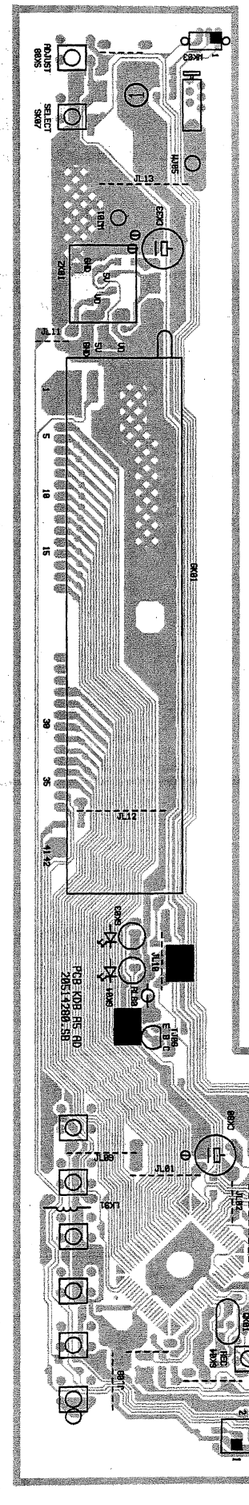
**R/T 5000 HI-FI**
First issue 08 / 95

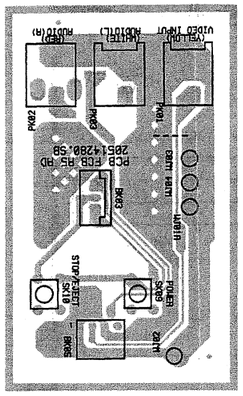


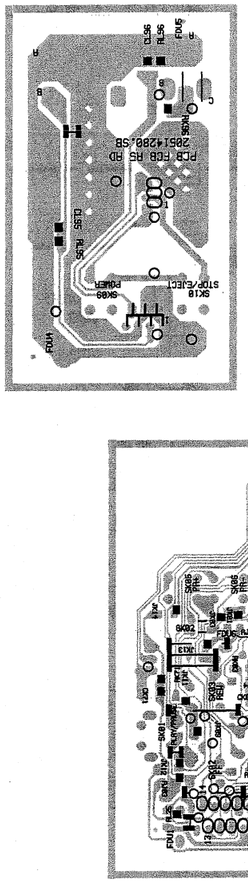
Updated 09 / 97

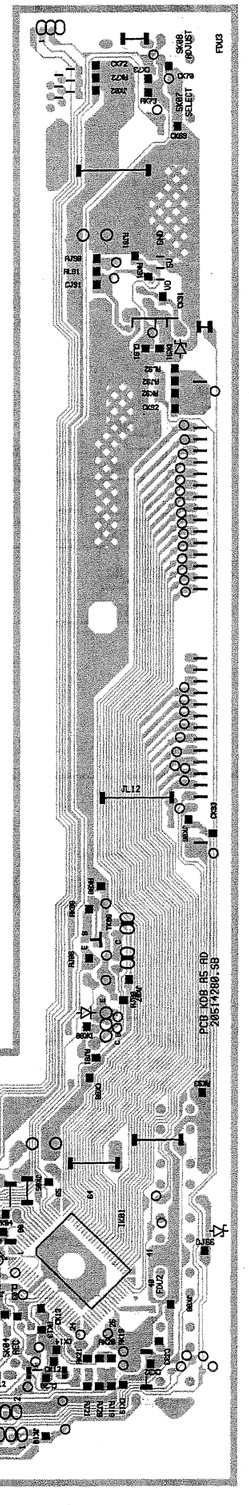
# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(THOMSON: VPH 6600 N)**

Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes





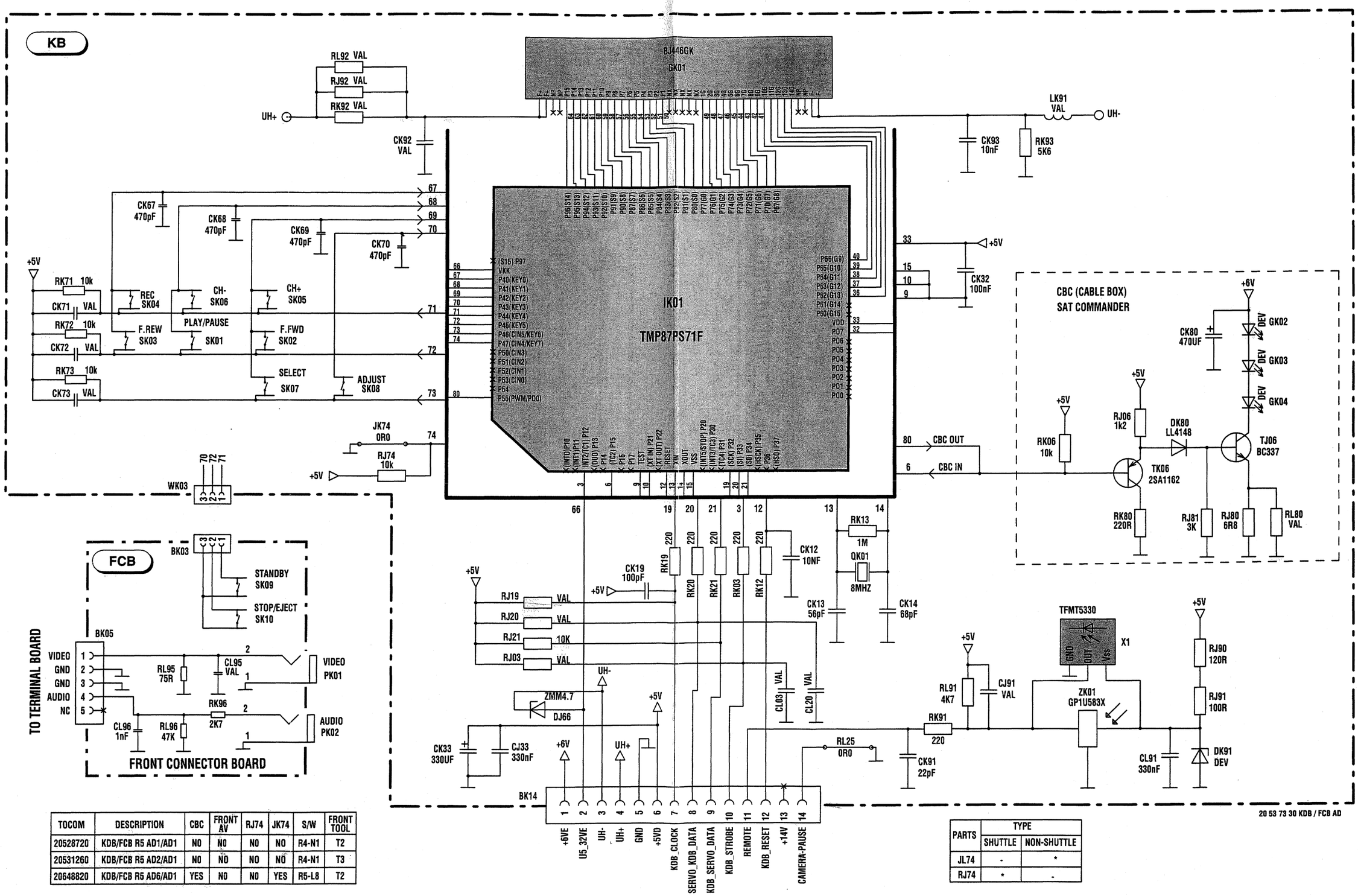




Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6600 N )

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



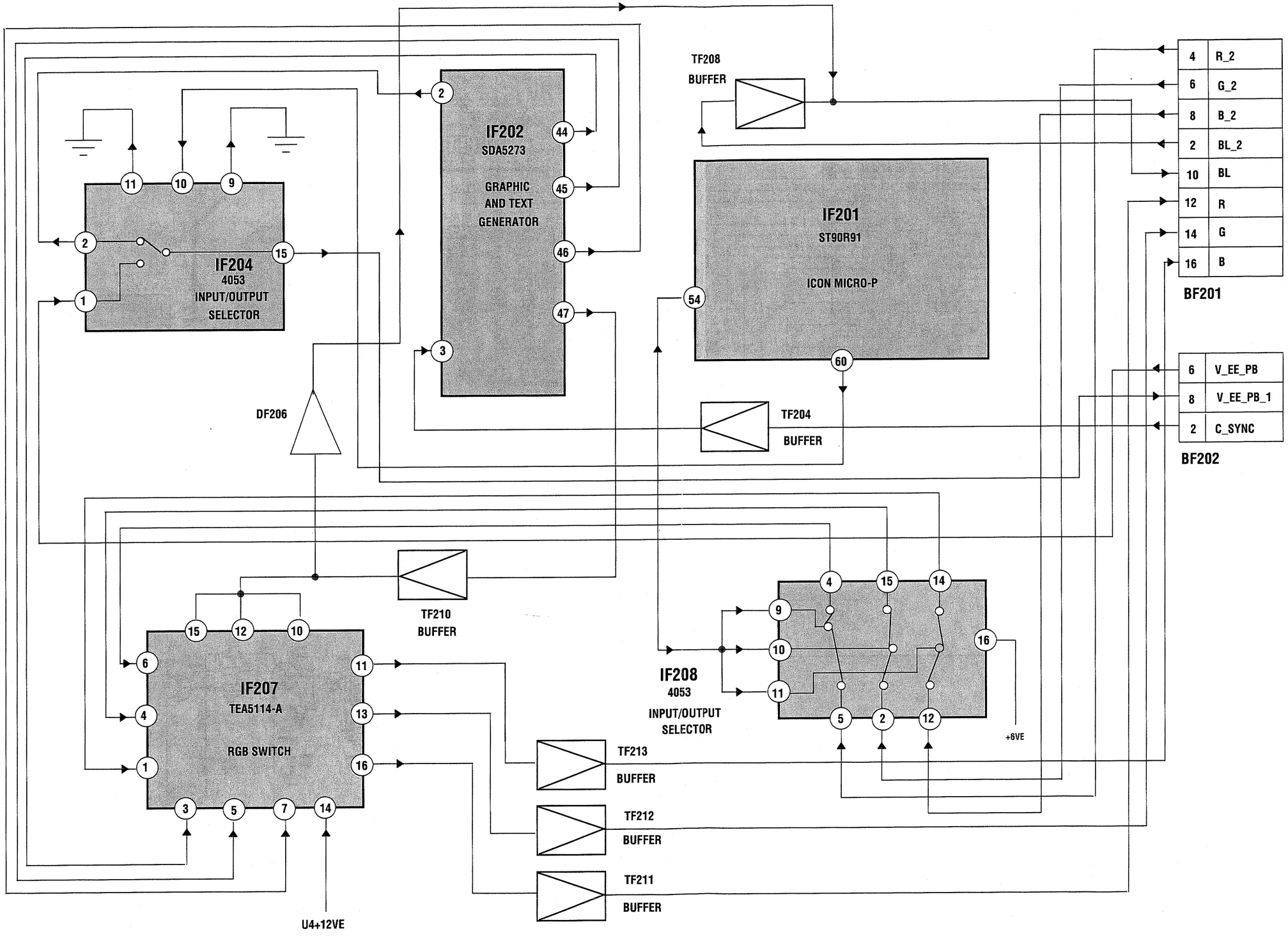

| TOCOM | DESCRIPTION | CBC | FRONT AV | RJ74 | JK74 | S/W | FRONT TOOL |
|---|---|---|---|---|---|---|---|
| 20528720 | KDB/FCB R5 AD1/AD1 | NO | NO | NO | NO | R4-N1 | T2 |
| 20531260 | KDB/FCB R5 AD2/AD1 | NO | NO | NO | NO | R4-N1 | T3 |
| 20648820 | KDB/FCB R5 AD6/AD1 | YES | NO | NO | YES | R5-L8 | T2 |

| PARTS | TYPE | |
|---|---|---|
| | SHUTTLE | NON-SHUTTLE |
| JL74 | - | * |
| RJ74 | * | - |

# GRAPHIC BOARD ( ICONS ) - PLATINE GRAPHIQUE (ICONES ) - LEITERPLATTE ZEICHENSATZEINBLENDUNG - PIASTRA GRAFICO - PLATINA AGRAFICA

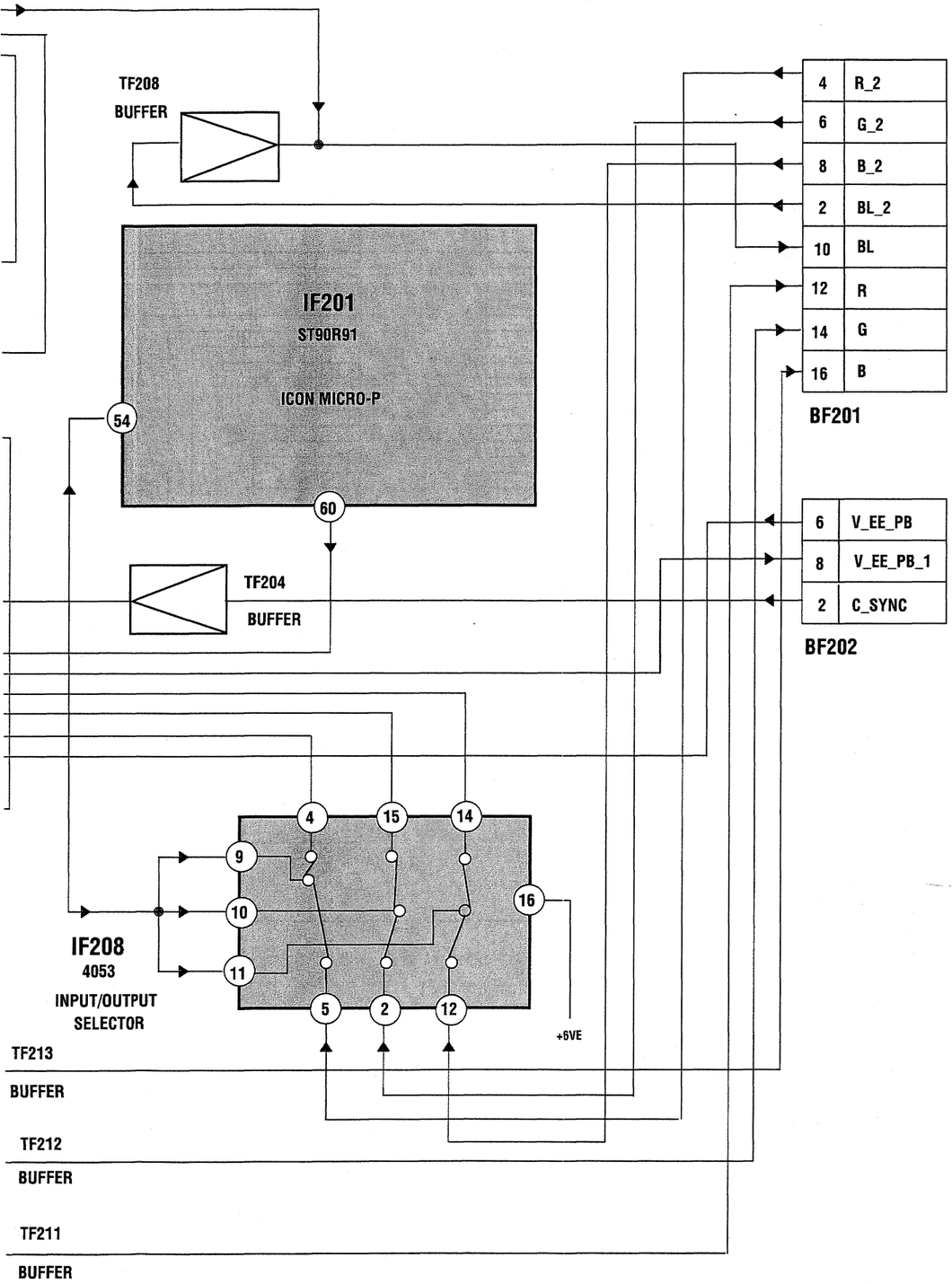
BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES

Component side
co

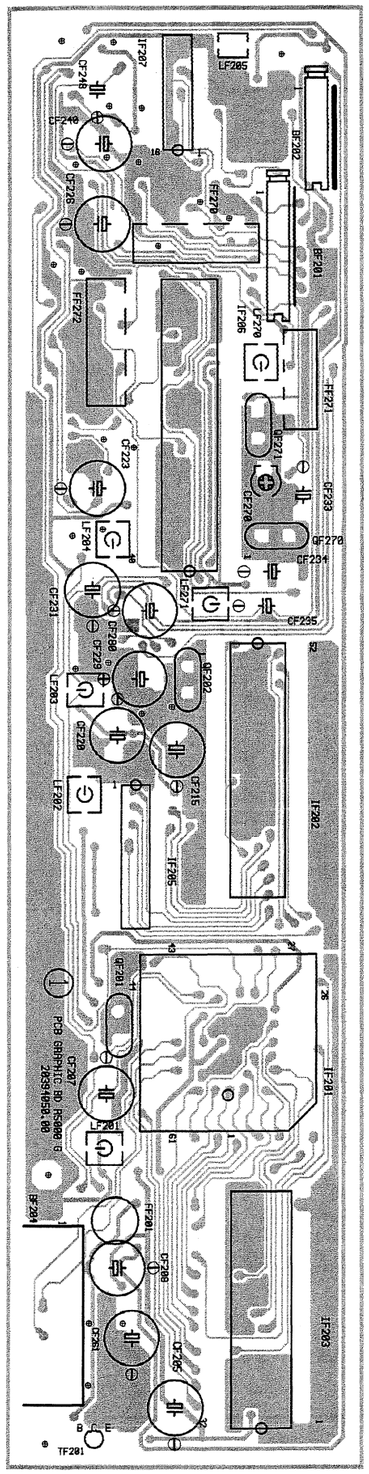


# ITERPLATTE ZEICHENSATZEINBLENDUNG - PIASTRA GRAFICO - PLATINA AGRAFICA

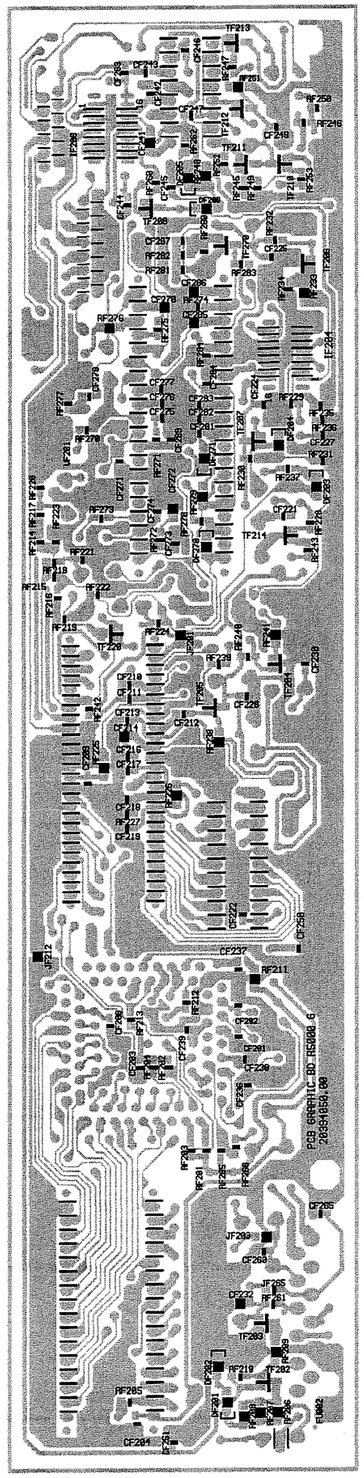
## BLOCCHI - ESQUEMA DE BLOQUES




Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

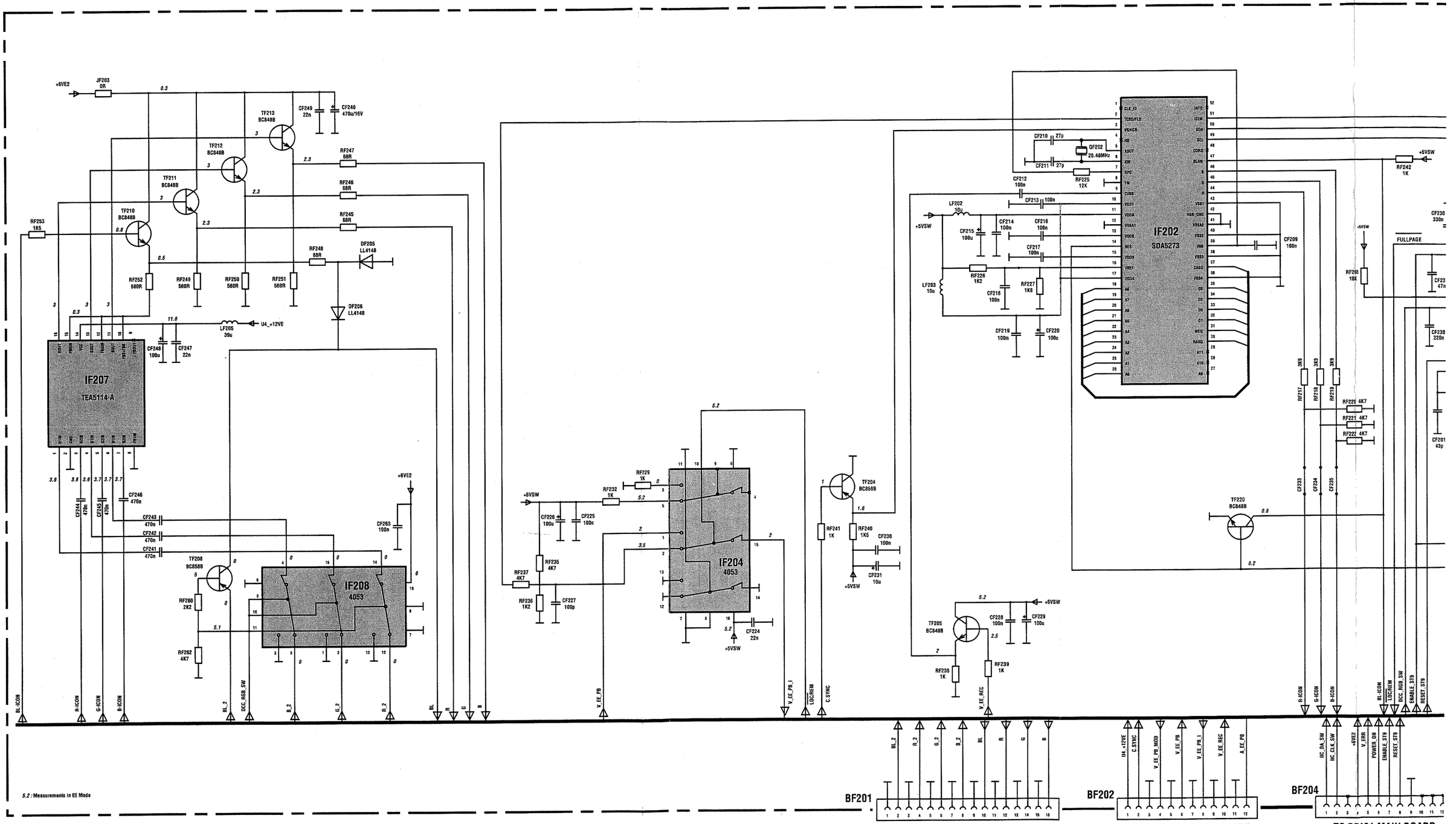


Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



# GRAPHIC BOARD ( ICONS ) - PLATINE GRAPHIQUE (ICONES ) - LEITERPLATTE ZEICHENSATZEINBLENDUNG - PIASTRA GRAFICO - PLATINA AGRAFICA ( VPH 6697

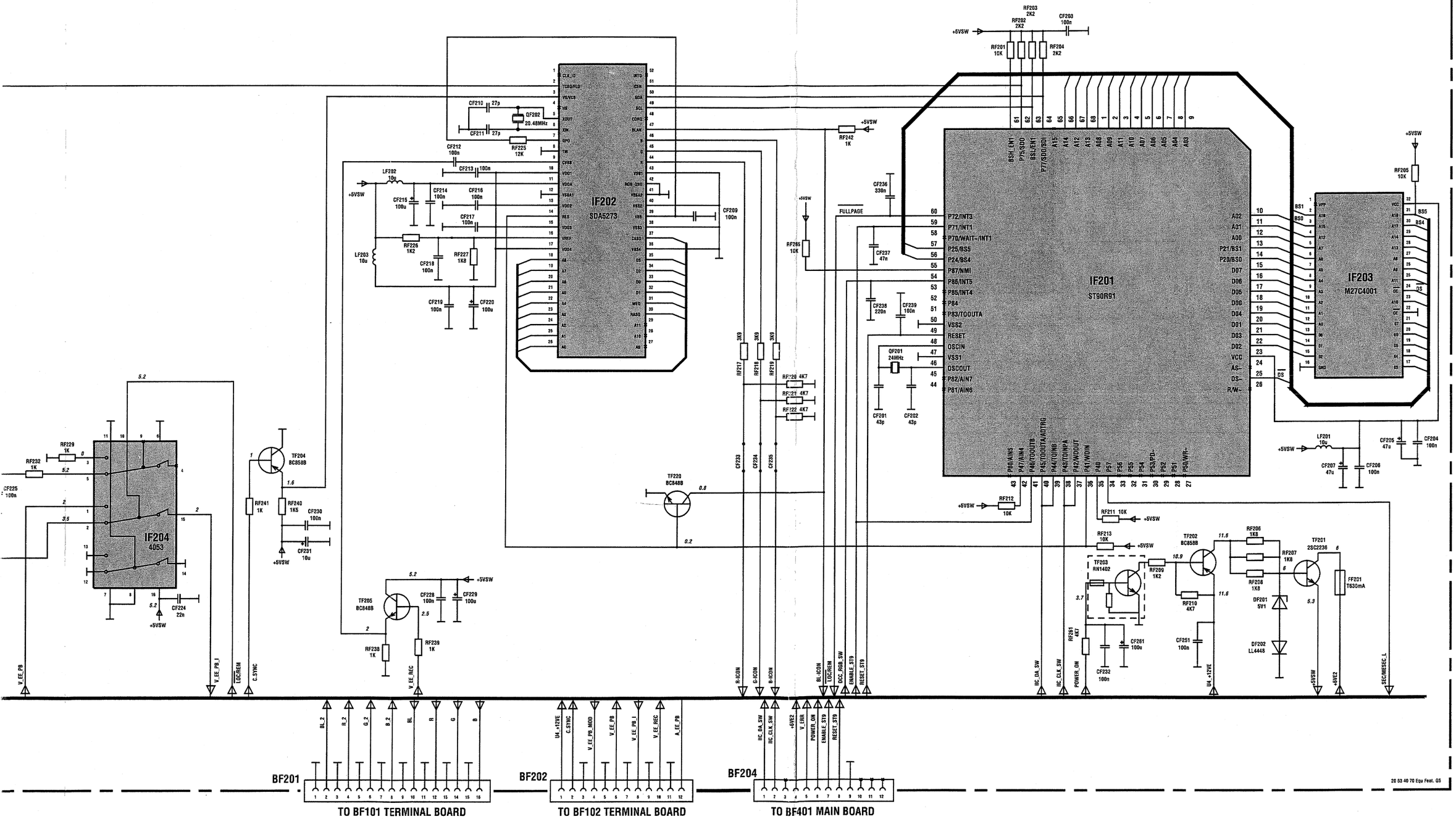
SCHEMATIC DIAGRAM -SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




5.2 : Measurements in EE Mode

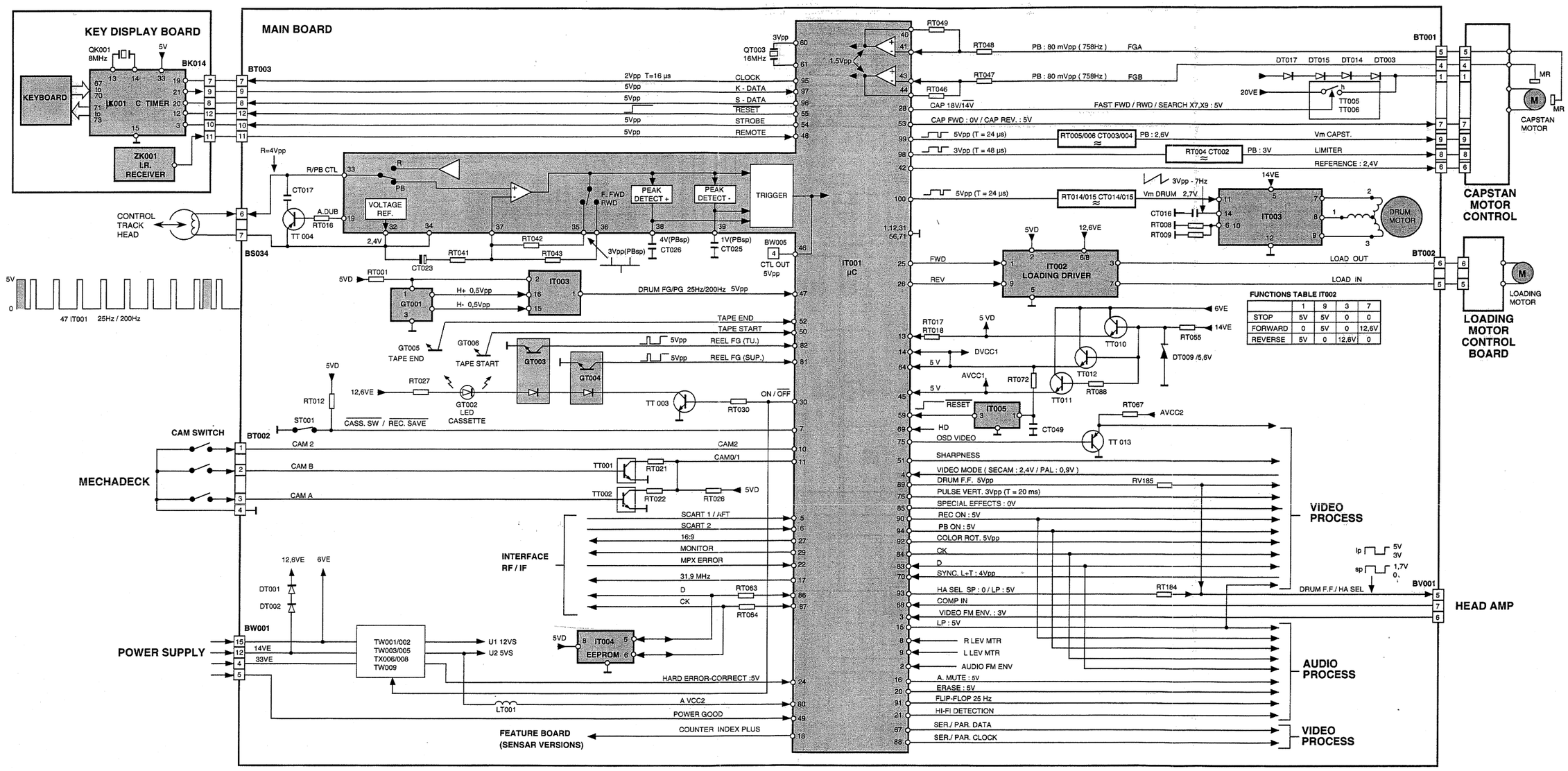
# TERPLATTE ZEICHENSATZEINBLENDUNG - PIASTRA GRAFICO - PLATINA AGRAFICA ( VPH 6697SENSAR - VPH 6790 )

JEMA



# MECHA DECK CONTROL / SERVO CONTROL - GESTION / ASSERVISSEMENTS - MECHANIKSTEUERUNG / SERVO - CONTROLLO MECCANISMO / ASSERVIMENTI - SERVOMECANISMO / GESTIÓN

BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES



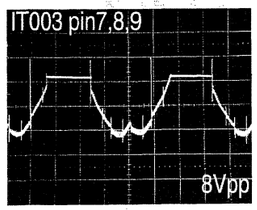
# MEASUREMENTS MECHA DECK CONTROL / SERVO CONTROL - MESURES GESTION / ASSERVISSEMENTS - MESSUNGEN MECHANIKSTEUERUNG / SERVO - MISURI CONTROLLO MECCANISMO / ASSERVIMENTI - MEDIDAS SERVOMECANISMO / GESTIÓN

| SERVO | | MODE | |
|---|---|---|---|
| LOC | PIN | PLAY | REC. |
| IT001 | 1 | 0 | 0 |
| | 2 | 0.4 | 2.3 |
| | 3 | 2.1 | 0 |
| | 4 | 3.4 | 0 |
| | 5 | 1.9 | 0 |
| | 6 | 0 | 0 |
| | 7 | 0 | 4.9 |
| | 8 | 0 | 3.7 |
| | 9 | 0.1 | 3.7 |
| | 10 | 0 | 0 |
| | 11 | 2 | 2 |
| | 12 | 0 | 0 |
| | 13 | 4.9 | 4.9 |
| | 14 | 4.8 | 4.8 |
| | 15 | 0 | 2.1 |
| | 16 | 0 | 0 |
| | 17 | 0 | 0 |
| | 18 | 0 | 0 |
| | 19 | 4.8 | 0 |
| | 20 | 0 | 0 |
| | 21 | 4.4 | 0 |
| | 22 | 5.1 | 0 |
| | 23 | 4.8 | 0 |
| | 24 | 4.9 | 4.9 |
| | 25 | 4.8 | 4.8 |
| | 26 | 4.8 | 4.8 |
| | 27 | 0 | 0 |
| | 28 | 0 | 0 |
| | 29 | 4.7 | 0 |
| | 30 | 4.6 | 0 |
| | 31 | 0 | 0 |
| | 32 | 2.4 | 2.4 |
| | 33 | 2.4 | 2.8 |
| | 34 | 2.4 | 2.4 |
| | 35 | 2.4 | 2.4 |
| | 36 | 2.4 | 2.4 |
| | 37 | 2.4 | 2.4 |
| | 38 | 3.8 | 2.4 |
| | 39 | 0.9 | 2.2 |
| | 40 | 2.4 | 2.4 |
| | 41 | 2.4 | 2.4 |
| | 42 | 2.4 | 2.4 |
| | 43 | 2.4 | 2.4 |
| | 44 | 0 | 2.4 |
| | 45 | 4.8 | 4.8 |
| | 46 | 4.8 | 4.8 |
| | 47 | 1.2 | 1.2 |
| | 48 | 4.9 | 4.9 |
| | 49 | 5 | 0 |
| | 50 | 4.9 | 4.8 |
| | 51 | 1.8 | 1.6 |
| | 52 | 4.9 | 5 |
| | 53 | 0 | 0 |
| | 54 | 4 | 2.1 |
| | 55 | 4.8 | 4.8 |
| | 56 | 0 | 0 |
| | 57 | 2.1 | 3.3 |
| | 58 | 2.5 | 2.5 |
| | 59 | 4.8 | 4.8 |
| | 60 | 2.3 | 2.3 |
| | 61 | 2 | 2 |
| | 62 | 4.8 | 4.8 |
| | 63 | 2.2 | 0.5 |
| | 64 | 4.8 | 4.8 |

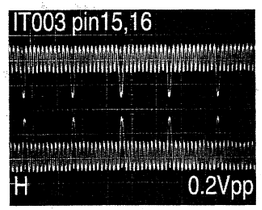
| SERVO | | MODE | |
|---|---|---|---|
| LOC | PIN | PLAY | REC. |
| | 65 | 0 | 0 |
| | 66 | 0 | 0 |
| | 67 | 0 | 0 |
| | 68 | 4.7 | 0 |
| | 69 | 4.7 | 4.7 |
| | 70 | 0.7 | 0.7 |
| | 71 | 0 | 0 |
| | 72 | 0 | 0 |
| | 73 | 0.8 | 0 |
| | 74 | 0 | 0 |
| | 75 | 1.3 | 1.3 |
| | 76 | 1.8 | 1.8 |
| | 77 | 1.5 | 0.2 |
| | 78 | 2.2 | 2.2 |
| | 79 | 2.2 | 2.2 |
| | 80 | 5.1 | 5.1 |
| | 81 | - | - |
| | 82 | - | - |
| | 83 | 4.9 | 4.9 |
| | 84 | 4.9 | 4.9 |
| | 85 | 4.8 | 4.8 |
| | 86 | 4.5 | 4.5 |
| | 87 | 4.6 | 4.6 |
| | 88 | 4.8 | 4.8 |
| | 89 | 2.3 | 2.3 |
| | 90 | 0 | 4.8 |
| | 91 | 2.4 | 2.4 |
| | 92 | 2.4 | 2.4 |
| | 93 | 4.7 | 0 |
| | 94 | 4.7 | 0 |
| | 95 | 4.3 | 4.3 |
| | 96 | 2.6 | 2.6 |
| | 97 | 4.3 | 4.3 |
| | 98 | 1.5 | 1.5 |
| | 99 | 2.5 | 2.5 |
| | 100 | 2.7 | 2.7 |
| IT002 | 1 | 4.6 | 4.6 |
| | 2 | 4.9 | 4.9 |
| | 3 | 0.5 | 0.5 |
| | 4 | - | - |
| | 5 | 0 | 0 |
| | 6 | 12.4 | 12.4 |
| | 7 | 0.5 | 0.5 |
| | 8 | 12.4 | 12.4 |
| | 9 | 4.6 | 4.6 |
| IT003 | 1 | 1.3 | 1.3 |
| | 2 | 1.4 | 1.4 |
| | 3 | 0 | 0 |
| | 4 | 0 | 0 |
| | 5 | 13.1 | 13.1 |
| | 6 | 0 | 0 |
| | 7 | 10 | 10 |
| | 8 | 10 | 10 |
| | 9 | 10 | 10 |
| | 10 | 0 | 0 |
| | 11 | 2.7 | 2.7 |
| | 12 | 0 | 0 |
| | 13 | 5 | 5 |
| | 14 | 3.2 | 3.2 |
| | 15 | 0.6 | 0.6 |
| | 16 | 0.8 | 0.8 |

| SERVO | | MODE | |
|---|---|---|---|
| LOC | PIN | PLAY | REC. |
| IT004 | 1 | 0 | 0 |
| | 2 | 0 | 0 |
| | 3 | 0 | 0 |
| | 4 | 0 | 0 |
| | 5 | 4.5 | 4.5 |
| | 6 | 4.7 | 4.7 |
| | 7 | 0 | 0 |
| | 8 | 4.9 | 4.9 |
| IT005 | 1 | 4.8 | 4.8 |
| | 2 | 0 | 0 |
| | 3 | 4.8 | 4.8 |
| TT001 | E | 0 | 0 |
| | B | 4.5 | 4.5 |
| | C | 0 | 0 |
| TT002 | E | 0 | 0 |
| | B | 4.5 | 4.5 |
| | C | 0 | 0 |
| TT003 | E | 0 | 0 |
| | B | 0.7 | 0.7 |
| | C | 0 | 0 |
| TT004 | E | 2.3 | 2.3 |
| | B | 4.8 | 4.8 |
| | C | 0 | 0 |
| TT005 | E | 23.3 | 23.3 |
| | B | 22.7 | 22.7 |
| | C | 10.7 | 10.7 |
| TT006 | E | 0 | 0 |
| | B | 0 | 0 |
| | C | 22 | 22 |
| TT010 | E | 4.9 | 4.9 |
| | B | 5.6 | 5.6 |
| | C | 5.8 | 5.8 |
| TT011 | E | 4.8 | 4.8 |
| | B | 5.5 | 5.5 |
| | C | 5.7 | 5.7 |
| TT012 | E | 4.8 | 4.8 |
| | B | 5.6 | 5.6 |
| | C | 5.7 | 5.7 |
| TT013 | E | 2 | 2 |
| | B | 1.3 | 1.3 |
| | C | 0 | 0 |






1

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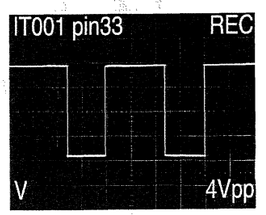
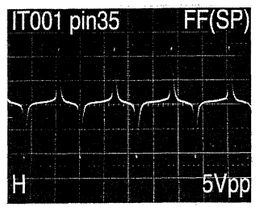



3

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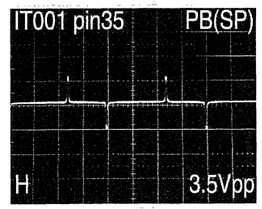
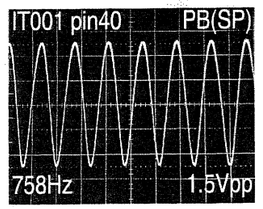
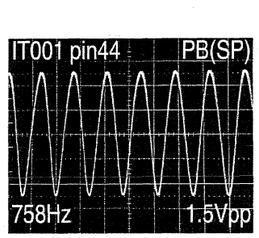


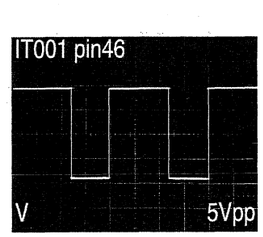

5




6




7

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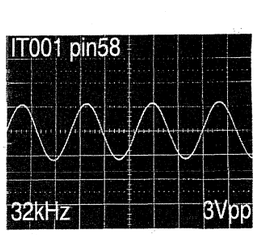


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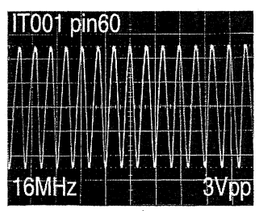


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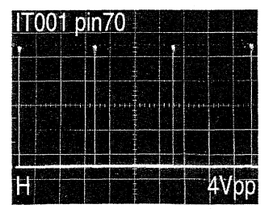


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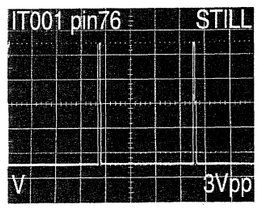
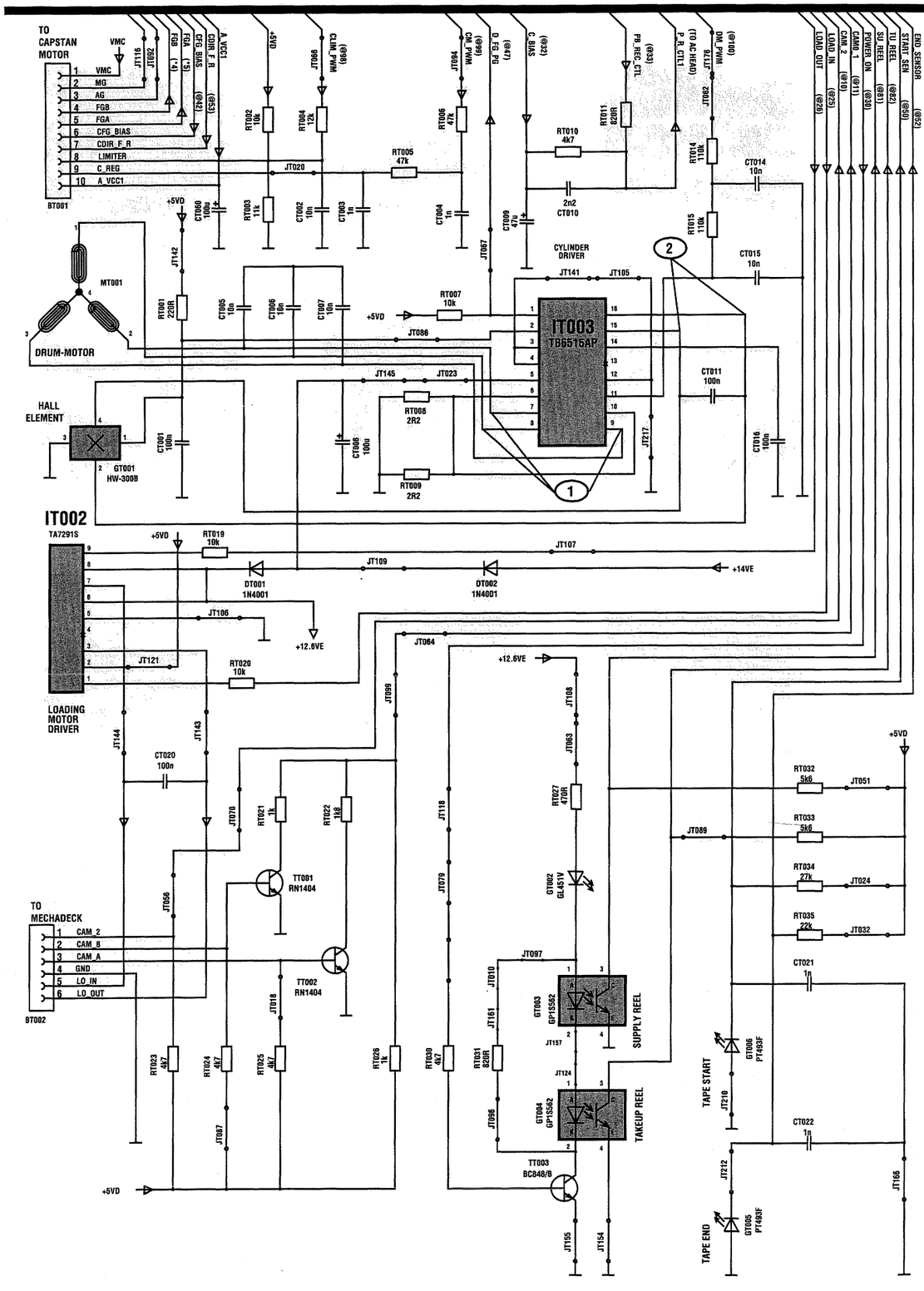
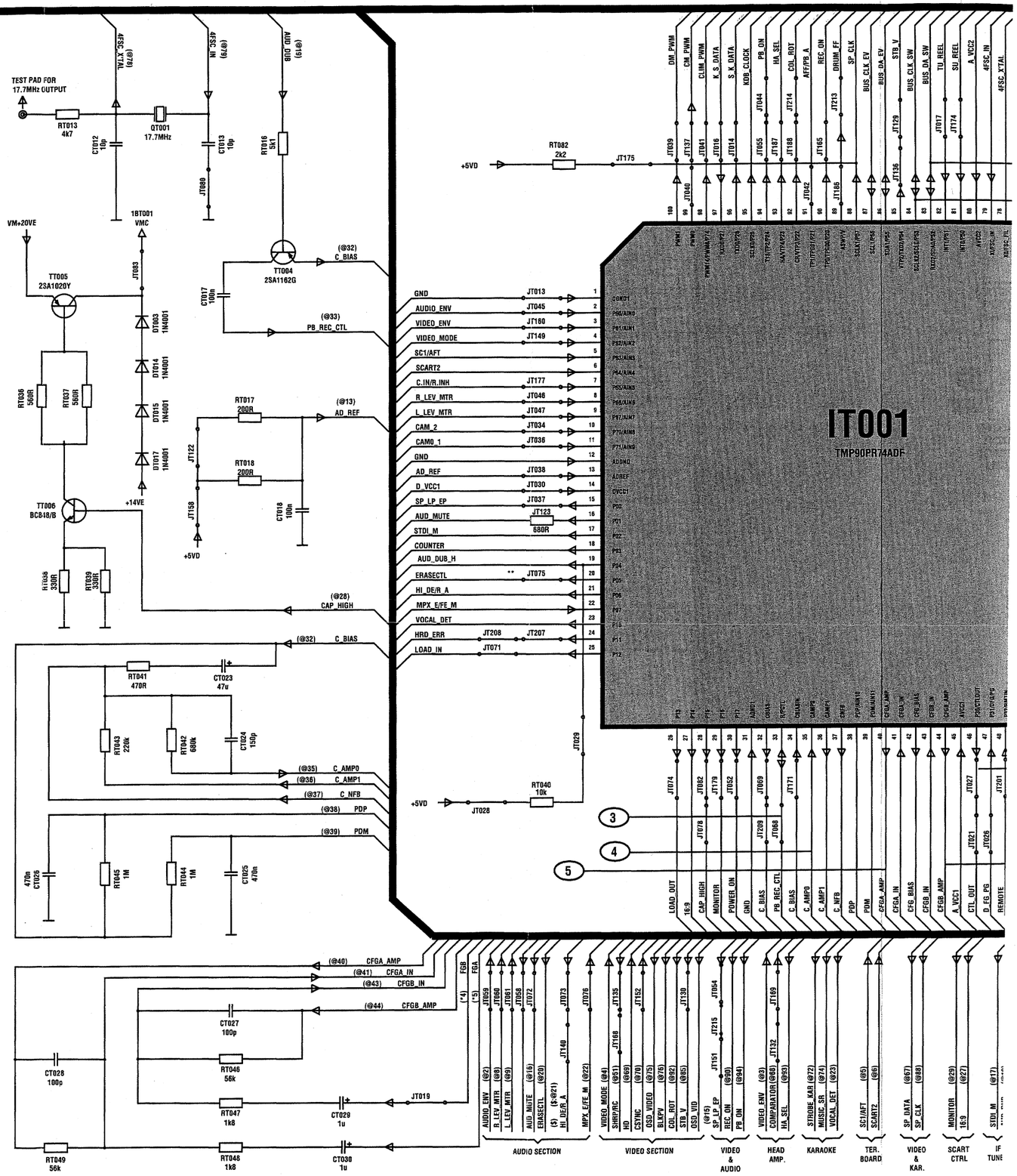



12

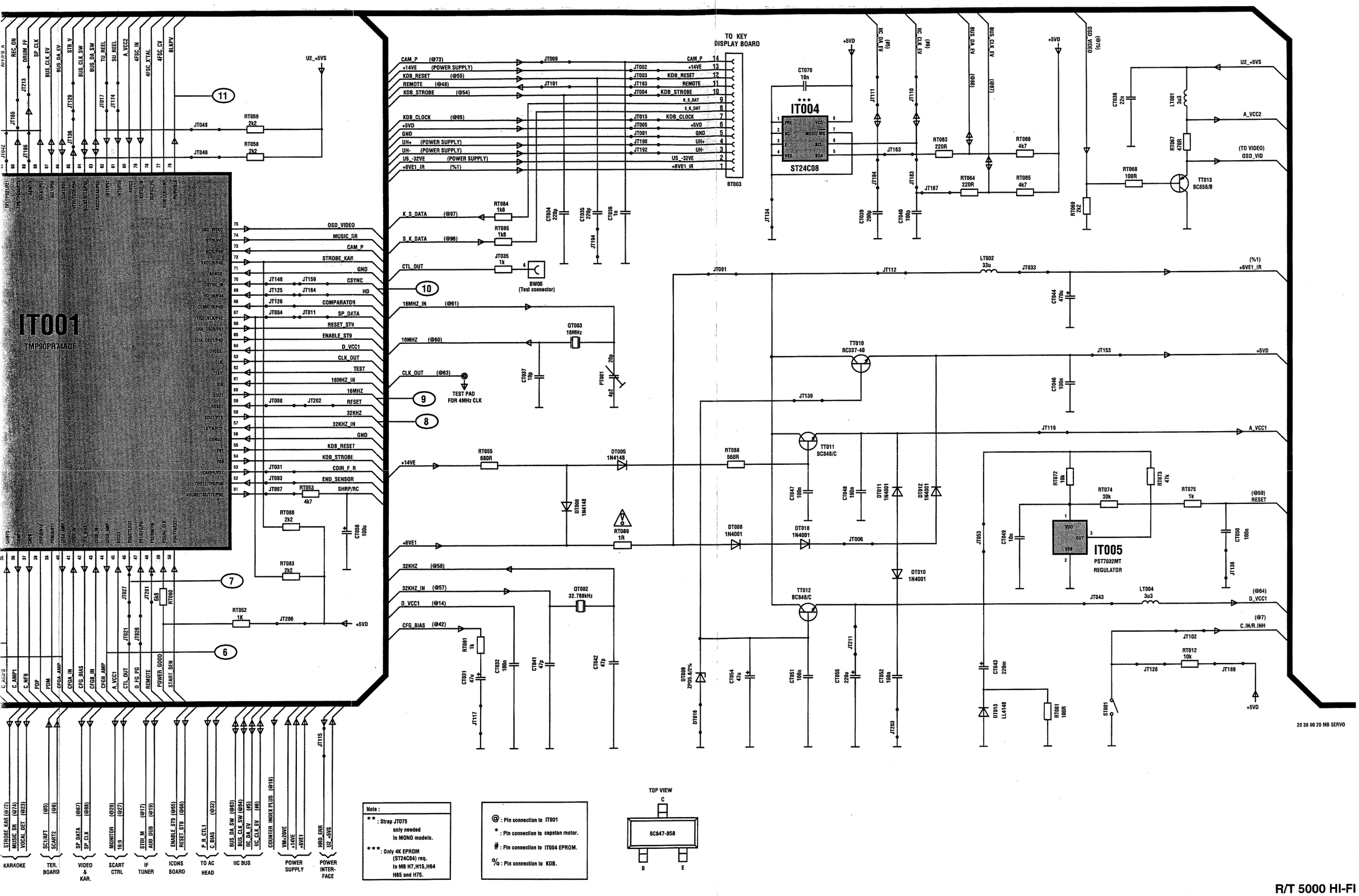
# MECHA DECK CONTROL / SERVO CONTROL - GESTION / ASSERVISSEMENTS - MECHANIKSTEUERUNG / SERVO - CONTROLLO MECCANISMO / ASSERVIMENTI - SER

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA

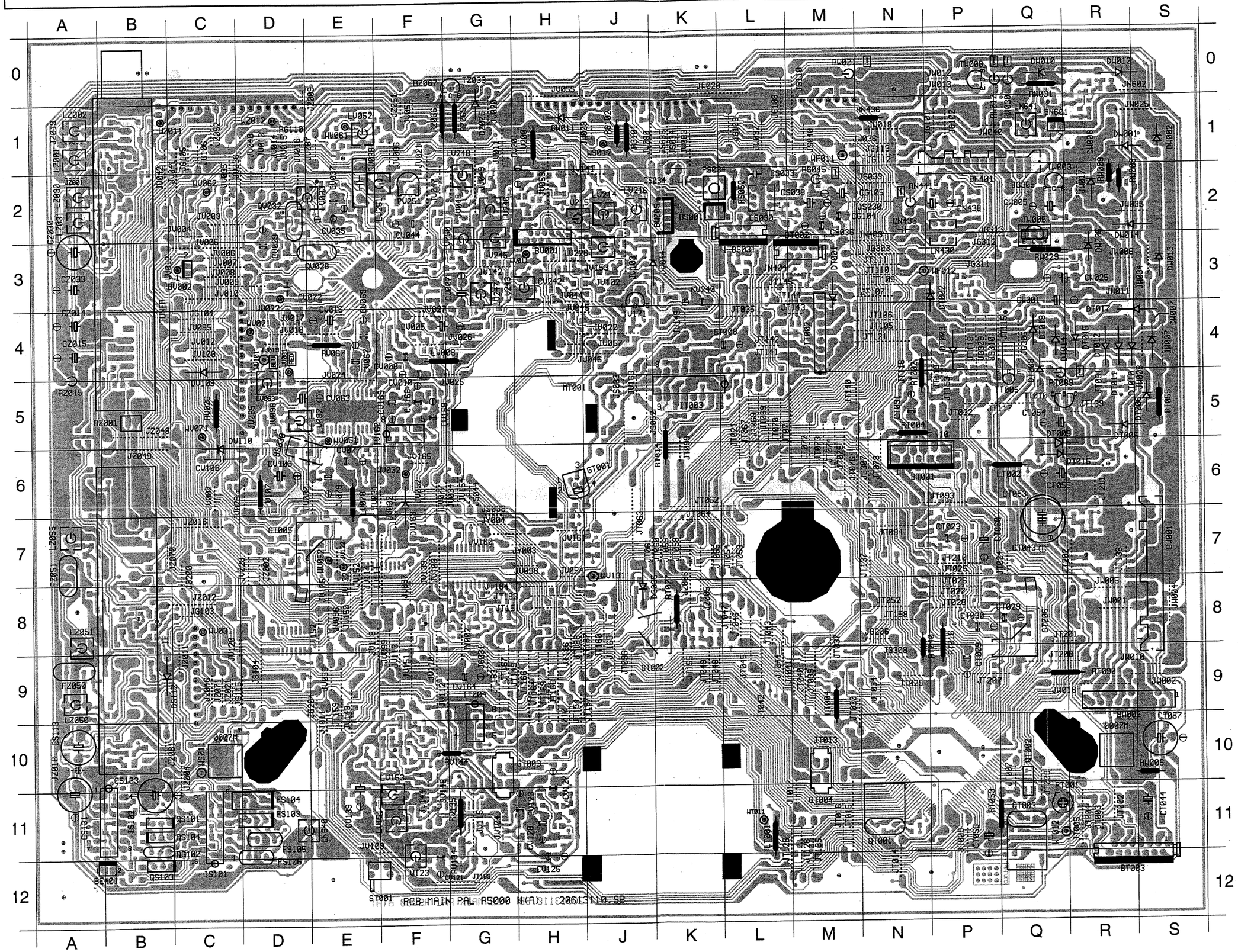


# SERVIMENTI - SERVOMECANISMO / GESTIÓN



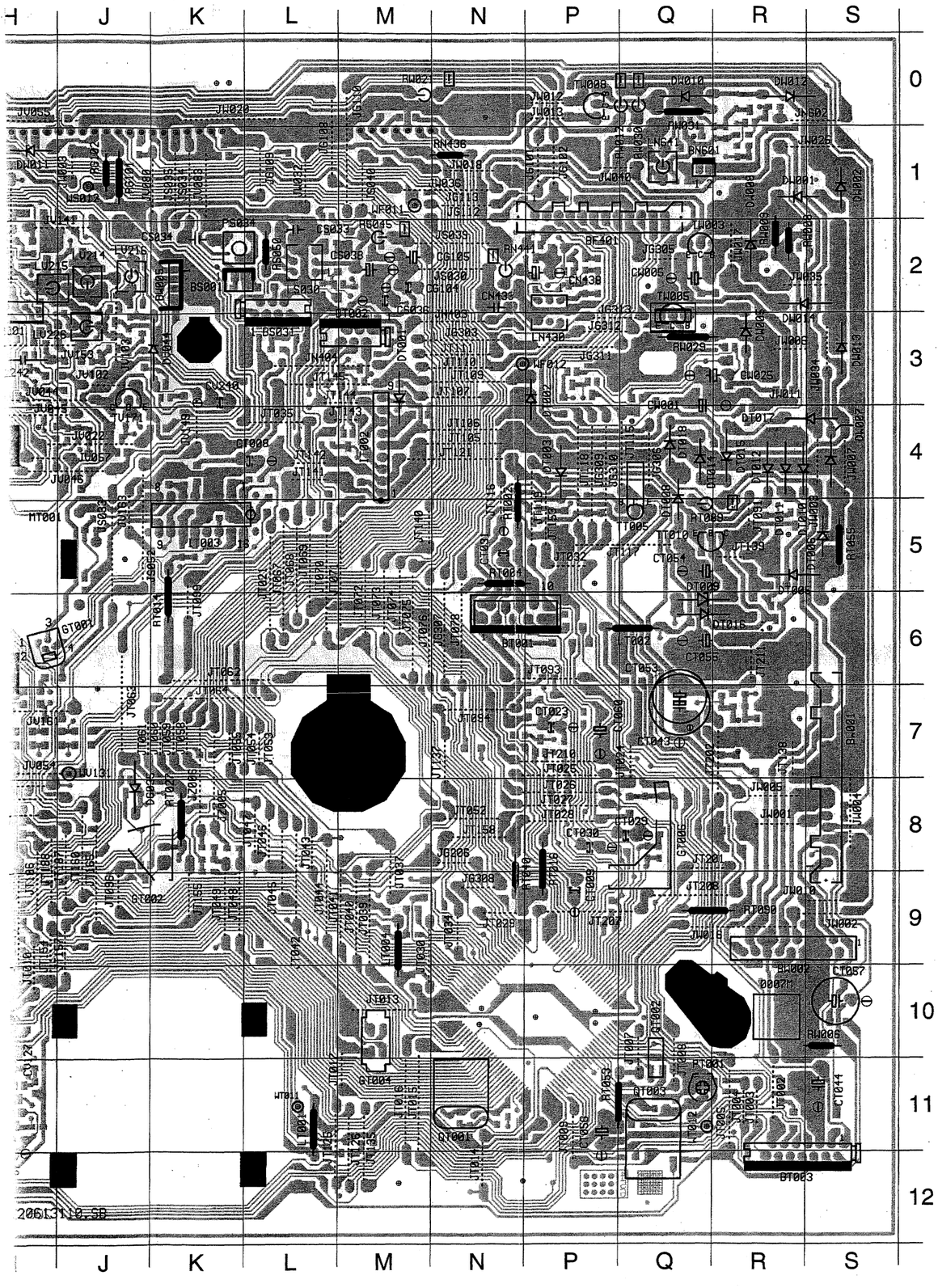
## Main P.C.B. components side • Circuit imprimé de la platine principale côté composants • Hauptleiterplatte Bestückungsseite
## Piastra principale lato componenti • Platina principal lado componentes




BE401
BE401*
BF401
BF401*
BN601
BN601*
BS001
BS001*
BS030
BS030*
BS031
BS031*
BT001
BT001*
BT002
BT002*
BT003
BT003*
BV001
BV001*
BV002
BV002*
BW001
BW001*
BW002
BW005
BW005*

CF401*
CG101*
CG102*
CJ104
CJ105
CN431*
CN433
CN436*
CN438
CN438*
CN637*
CN640*
CN643*
CN644*
CN645*
CN646*
CS030*
CS031*
CS033
CS034
CS036
CS038
CS101*
CS102*
CS103*
CS104*
CS112*
CS113
CS116*
CS118*
CS121*
CS122*
CS123*
CS124*
CS131
CS132*
CS133
CS134*
CS135*
CT001*
CT002*
CT003*
CT004*
CT005*
CT006*

## atine principale côté composants • Hauptleiterplatte Bestückungsseite
## onenti • Platina principal lado componentes






## COMPONENTS LOCATION - LOCALISATION DES ELEMENTS - LAGE DER BAUTEILE
## LOCALIZZAZIONE DEGLI ELEMENTI - LOCALIZACION DE LOS COMPONENTS

* SOLDER SIDE - COTE CUIVRE - LÖTSEITE - LATO SALDATURE - LADO DEL COBRE

| 1 | 2 | 3 |
|---|---|---|

| | |
|---|---|
| BE401 | B12 |
| BE401* | S0 |
| BF401 | P2 |
| BF401* | D10 |
| BN601 | Q1 |
| BN601* | B11 |
| BS001 | K2 |
| BS001* | H10 |
| BS030 | D5 |
| BS030* | P7 |
| BS031 | L3 |
| BS031* | H10 |
| BT001 | N6 |
| BT001* | D7 |
| BT002 | M2 |
| BT002* | G10 |
| BT003 | R12 |
| BT003* | A0 |
| BV001 | H3 |
| BV001* | K10 |
| BV002 | C3 |
| BV002* | Q9 |
| BW001 | S7 |
| BW001* | A5 |
| BW002 | R9 |
| BW005 | K2 |
| BW005* | H10 |

| | |
|---|---|
| CF401* | D11 |
| CG101* | R10 |
| CG102* | R9 |
| CJ104 | N2 |
| CJ105 | N2 |
| CN431* | D10 |
| CN433 | N2 |
| CN436* | D10 |
| CN438 | P2 |
| CN438* | D10 |
| CN637* | P2 |
| CN640* | C11 |
| CN643* | B11 |
| CN644* | B12 |
| CN645* | C12 |
| CN646* | C11 |
| CS030* | G10 |
| CS031* | G11 |
| CS033 | L2 |
| CS034 | J2 |
| CS036 | M2 |
| CS038 | L2 |
| CS101* | Q1 |
| CS102* | Q1 |
| CS103* | Q1 |
| CS104* | Q1 |
| CS112* | R2 |
| CS113 | A10 |
| CS116* | S1 |
| CS118* | R1 |
| CS121* | S1 |
| CS122* | S3 |
| CS123* | R1 |
| CS124* | R2 |
| CS131 | A11 |
| CS132* | Q1 |
| CS133 | B10 |
| CS134* | Q2 |
| CS135* | M11 |
| CT001* | H8 |
| CT002* | E7 |
| CT003* | D7 |
| CT004* | E6 |
| CT005* | J7 |
| CT006* | J8 |
| CT007* | J7 |
| CT008 | L4 |
| CT009 | P9 |
| CT010* | G9 |
| CT011* | H7 |
| CT012* | E1 |
| CT013* | E1 |
| CT014* | H7 |
| CT015* | H8 |
| CT016* | H8 |
| CT017* | E5 |
| CT018* | F3 |
| CT020* | F8 |
| CT021* | C5 |
| CT022* | P5 |
| CT023 | P7 |
| CT024* | D5 |
| CT025* | D6 |
| CT026* | D5 |
| CT027* | C4 |
| CT028* | D3 |
| CT029 | P8 |
| CT030 | P8 |
| CT031 | N5 |
| CT032* | F2 |
| CT034* | C2 |
| CT035* | C1 |
| CT036* | C1 |
| CT037* | C1 |
| CT038* | G1 |
| CT039* | L2 |
| CT040* | L3 |
| CT041* | C2 |
| CT042* | C2 |
| CT043 | Q7 |
| CT044 | S11 |
| CT045* | C7 |
| CT046* | C7 |
| CT047* | B7 |
| CT048* | B7 |
| CT049* | B5 |
| CT050* | C5 |
| CT051* | C7 |
| CT052* | C6 |
| CT053 | Q6 |
| CT054 | Q5 |
| CT055 | Q6 |
| CT056 | P11 |
| CT060 | P7 |
| CT070* | L3 |
| CV001* | M9 |
| CV002* | M9 |
| CV004* | L8 |
| CV005 | F4 |
| CV006* | L8 |
| CV007 | F3 |
| CV008 | F4 |
| CV009* | M8 |
| CV010 | F4 |
| CV011* | M9 |
| CV013* | N8 |
| CV016 | E3 |
| CV022* | N9 |
| CV025* | P9 |
| CV029 | D2 |
| CV030* | P10 |
| CV032* | N10 |
| CV034* | N10 |
| CV035 | E2 |
| CV036* | N10 |
| CV037 | E2 |
| CV038 | E1 |
| CV039* | N10 |
| CV041* | M10 |
| CV042* | M10 |
| CV044 | F2 |
| CV045* | M10 |
| CV046* | L9 |
| CV047* | M9 |
| CV048* | M10 |
| CV049* | M9 |
| CV050* | L10 |
| CV051* | M11 |
| CV052* | N11 |
| CV053* | N11 |
| CV054* | N12 |
| CV055* | N12 |
| CV062* | P8 |
| CV063 | E5 |
| CV064* | N8 |
| CV065* | N8 |
| CV067 | E4 |
| CV069 | E3 |
| CV071* | N8 |
| CV072 | E3 |
| CV074* | N6 |
| CV076* | N7 |
| CV077 | E5 |
| CV078* | N7 |
| CV079 | E6 |
| CV082* | P7 |
| CV083* | P7 |
| CV103* | P7 |
| CV106 | D6 |
| CV107* | P6 |
| CV108 | C6 |
| CV121 | G12 |
| CV122* | L2 |
| CV123 | H11 |
| CV124* | M0 |
| CV125 | H12 |
| CV126* | K1 |
| CV127 | H10 |
| CV128 | H11 |
| CV135* | M2 |
| CV139 | E10 |
| CV140* | N2 |
| CV141* | M2 |
| CV150* | M1 |
| CV151* | M1 |
| CV152* | M1 |
| CV153* | N2 |
| CV154* | N1 |
| CV155* | N1 |
| CV156* | N1 |
| CV161* | M6 |
| CV163* | M7 |
| CV164 | G9 |
| CV165* | M7 |
| CV166 | F5 |
| CV167* | M7 |
| CV168 | F5 |
| CV169 | F5 |
| CV170* | P4 |
| CV171* | N5 |
| CV182* | K10 |
| CV184* | K10 |
| CV189* | J8 |
| CV200* | K11 |
| CV201 | G1 |
| CV202* | K10 |
| CV206* | J11 |
| CV212* | K10 |
| CV213* | K10 |
| CV214* | J10 |
| CV215* | J10 |
| CV219* | J9 |
| CV222* | K9 |
| CV224* | J9 |
| CV226* | J10 |
| CV240 | K3 |
| CV241* | L9 |
| CV242 | H3 |
| CV243* | L9 |
| CV244* | L10 |
| CV245* | L10 |
| CV246* | L10 |
| CV247* | L9 |
| CV248* | L10 |
| CV249* | L11 |
| CV250* | L10 |
| CV251* | M10 |
| CV252* | N11 |
| CV254* | L11 |
| CW001 | Q3 |
| CW005 | Q2 |
| CW007* | B10 |
| CW025 | R3 |
| CY001* | L4 |
| CY002* | L4 |
| CY003* | L4 |
| CY004* | M4 |
| CZ005* | R6 |
| CZ010* | R3 |
| CZ013* | S8 |
| CZ014 | A4 |
| CZ015 | A4 |
| CZ019* | Q4 |
| CZ021* | S8 |
| CZ030 | A3 |
| CZ033 | A3 |
| CZ034* | S10 |
| CZ035* | R9 |
| CZ036* | S10 |
| CZ055* | S5 |
| CZ056* | S6 |

| | |
|---|---|
| DG030* | Q5 |
| DG034* | M4 |
| DG035 | J8 |
| DS112 | B9 |
| DT001 | M3 |
| DT002 | P4 |
| DT003 | P4 |
| DT005 | R5 |
| DT006 | S5 |
| DT008 | Q4 |
| DT009 | Q5 |
| DT010 | R5 |
| DT011 | R5 |
| DT012 | R4 |
| DT013* | B5 |
| DT014 | Q4 |
| DT015 | R4 |
| DT016 | Q6 |
| DT017 | R3 |
| DT018 | Q4 |
| DV003 | F6 |
| DV029* | P9 |
| DV039* | M10 |
| DV044 | K3 |
| DV048* | L9 |
| DV082* | P5 |
| DV109 | C4 |
| DV110 | C5 |
| DV123* | K1 |
| DV126* | P5 |
| DV163 | F6 |
| DV182* | L10 |
| DV186* | K8 |
| DV202* | K10 |
| DW001 | R1 |
| DW002 | S1 |
| DW005 | R3 |
| DW006* | B9 |
| DW007 | S4 |
| DW008 | R1 |
| DW010 | Q0 |
| DW011 | H1 |
| DW012 | R0 |
| DW013 | S3 |
| DW014 | R2 |
| DZ001* | S11 |
| DZ002* | R4 |
| DZ003* | R4 |
| DZ004* | R4 |
| DZ005* | R3 |

| | |
|---|---|
| FS103 | D11 |
| FS104 | D11 |
| FS105 | D11 |
| FS106 | D11 |
| FU01* | P0 |
| FU02* | A11 |
| FU03* | N9 |
| FU04* | N9 |
| FU05* | D2 |
| FU06* | D3 |
| FU07* | C1 |
| FZ050 | A9 |
| FZ051 | A7 |

| | |
|---|---|
| IS101 | C12 |
| IS101* | Q1 |
| IS102 | B11 |
| IS102* | R2 |
| IT001* | D3 |
| IT002 | M4 |
| IT002* | F8 |
| IT003 | K5 |
| IT003* | H7 |
| IT004 | G9 |
| IT004* | L3 |
| IT005* | B5 |
| IV001* | M9 |
| IV060* | M7 |
| IV100* | P7 |
| IV120* | L1 |
| IV160 | E5 |
| IV160* | M7 |
| IV170* | P4 |
| IV171* | M5 |
| IY001* | L5 |

| | |
|---|---|
| JG031 | G9 |
| JG036* | L3 |
| JG037* | M3 |
| JG101 | N1 |
| JG102 | P1 |
| JG103 | C8 |
| JG104 | C4 |
| JG105 | C1 |
| JG106 | C1 |
| JG107* | R11 |
| JG108 | L1 |
| JG109 | L1 |
| JG110 | M0 |
| JG112 | N1 |
| JG113 | N1 |
| JG200 | C7 |
| JG201* | P3 |
| JG202* | S7 |
| JG203* | P3 |
| JG204 | E9 |
| JG205* | K4 |
| JG206 | N8 |
| JG303 | N3 |
| JG305 | Q2 |
| JG306 | Q4 |
| JG307 | M6 |
| JG308 | N8 |
| JG309 | P4 |
| JG310 | P4 |
| JG311 | P3 |
| JG312 | P3 |
| JG313 | P3 |
| JN401* | E10 |
| JN403 | N2 |
| JN404 | L3 |
| JN602 | R0 |

| | |
|---|---|
| JN603* | B12 |
| JS030 | N2 |
| JS031* | G10 |
| JS033 | J5 |
| JS034 | K1 |
| JS035 | K1 |
| JS036* | K5 |
| JS037* | K6 |
| JS038 | G6 |
| JS039 | N2 |
| JS040 | M1 |
| JS043* | G9 |
| JS044 | G6 |
| JS050* | K6 |
| JS051* | J6 |
| JS052 | J5 |
| JS101* | P1 |
| JS102* | R1 |
| JS103* | Q1 |
| JS104 | D9 |
| JS107* | R2 |
| JS108* | S2 |
| JS109* | S2 |
| JS110* | G11 |
| JS112* | R0 |
| JS113* | R1 |
| JS115 | C9 |
| JS116* | R1 |
| JT001* | A2 |
| JT002 | R11 |
| JT003 | R11 |
| JT004 | R11 |
| JT005 | R11 |
| JT006* | B8 |
| JT007 | Q10 |
| JT008 | Q10 |
| JT009 | P11 |
| JT010 | H9 |
| JT011 | E9 |
| JT013 | M10 |
| JT014 | N11 |
| JT015 | M11 |
| JT016 | M11 |
| JT017 | L11 |
| JT018* | G9 |
| JT019* | D6 |
| JT020* | D6 |
| JT021 | L5 |
| JT023* | H8 |
| JT024 | P7 |
| JT025 | P7 |
| JT026 | P7 |
| JT027 | P8 |
| JT028 | P8 |
| JT029 | N9 |
| JT030 | M9 |
| JT031* | D6 |
| JT032 | P5 |
| JT033* | C6 |
| JT034 | N9 |
| JT035 | L3 |
| JT036* | F3 |
| JT037 | M8 |
| JT038* | F3 |
| JT039 | M9 |
| JT040 | M9 |
| JT041 | L9 |
| JT042 | L9 |
| JT043 | L8 |
| JT044 | L9 |
| JT045 | L9 |
| JT046 | L8 |
| JT047 | L8 |
| JT048 | K9 |
| JT049 | K9 |
| JT051* | L3 |
| JT052 | N8 |
| JT053 | L7 |
| JT054 | L7 |
| JT055 | K7 |
| JT056* | G8 |

| | |
|---|---|
| JT058 | K7 |
| JT059 | K7 |
| JT060 | K7 |
| JT061 | J7 |
| JT062 | K6 |
| JT063 | J7 |
| JT064 | K6 |
| JT066* | H6 |
| JT067 | L5 |
| JT068 | L5 |
| JT069 | L5 |
| JT070 | L5 |
| JT071 | L5 |
| JT072 | M6 |
| JT073 | M6 |
| JT074 | M6 |
| JT075 | M6 |
| JT076 | M6 |
| JT078 | N6 |
| JT079* | D6 |
| JT080* | E1 |
| JT082* | E5 |
| JT083* | E8 |
| JT084* | K0 |
| JT086* | G8 |
| JT087* | G8 |
| JT089* | J3 |
| JT091 | R5 |
| JT092* | E5 |
| JT093 | P6 |
| JT094 | N7 |
| JT096 | J9 |
| JT097* | K3 |
| JT099 | K6 |
| JT102* | K3 |
| JT105 | N4 |
| JT106 | N4 |
| JT107 | N3 |
| JT108* | E9 |
| JT109 | N3 |
| JT110 | N3 |
| JT111 | N3 |
| JT112* | B6 |
| JT115 | Q4 |
| JT116 | N4 |
| JT117 | P5 |
| JT118 | P4 |
| JT119 | P5 |
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| JT123* | E4 |
| JT124* | K2 |
| JT125 | L11 |
| JT126 | M11 |
| JT128* | K3 |
| JT129* | L3 |
| JT130* | L3 |
| JT132* | K5 |
| JT134* | M3 |
| JT135 | M11 |
| JT136* | G3 |
| JT137 | N7 |
| JT138 | R7 |
| JT139 | R5 |
| JT140 | M5 |
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| JT142 | L4 |
| JT143 | L3 |
| JT144 | L3 |
| JT145 | L3 |
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| JT149 | G9 |
| JT151 | G8 |
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| JT155 | K9 |
| JT158 | N8 |
| JT159 | E9 |
| JT160 | J8 |
| JT161* | K2 |

| | |
|---|---|
| JT163 | G9 |
| JT164 | H9 |
| JT165 | J8 |
| JT166 | H9 |
| JT167 | G9 |
| JT168 | H9 |
| JT169 | H9 |
| JT171* | E5 |
| JT174* | K2 |
| JT175* | K3 |
| JT176* | E4 |
| JT177* | K4 |
| JT179* | H5 |
| JT183 | G8 |
| JT184 | G7 |
| JT186 | H9 |
| JT187 | J8 |
| JT188 | H8 |
| JT189 | G12 |
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| JT192* | A1 |
| JT193* | B1 |
| JT194* | C1 |
| JT201 | Q8 |
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| JT203* | B7 |
| JT206* | C4 |
| JT207 | P9 |
| JT208 | Q9 |
| JT209* | G9 |
| JT210 | P7 |
| JT211 | R6 |
| JT212* | K4 |
| JT213* | K4 |
| JT214* | K4 |
| JT215* | J4 |
| JT217* | G8 |
| JV001* | L9 |
| JV002 | C6 |
| JV003 | C2 |
| JV004 | C2 |
| JV005 | C3 |
| JV006 | C3 |
| JV007 | C3 |
| JV008 | C3 |
| JV009 | C3 |
| JV010 | C3 |
| JV011 | G1 |
| JV012 | C4 |
| JV013 | D1 |
| JV014 | D1 |
| JV015 | D1 |
| JV016 | D1 |
| JV017 | D4 |
| JV018 | D4 |
| JV019 | D4 |
| JV020 | G1 |
| JV021 | F1 |
| JV022 | J4 |
| JV024 | E4 |
| JV025 | G4 |
| JV026 | G4 |
| JV027 | F3 |
| JV028 | D7 |
| JV029 | D6 |
| JV030 | D6 |
| JV031 | E6 |
| JV032 | F6 |
| JV034 | G6 |
| JV035 | C1 |
| JV036 | C1 |
| JV037* | Q10 |
| JV038 | H7 |
| JV039 | E9 |
| JV040 | D1 |
| JV041 | C1 |
| JV042 | B1 |
| JV043* | M8 |
| JV044 | H3 |
| JV045 | H3 |

| | |
|---|---|
| JV046 | J4 |
| JV047 | F2 |
| JV048 | G2 |
| JV049 | G2 |
| JV051 | F1 |
| JV052 | F6 |
| JV053 | H2 |
| JV054 | H7 |
| JV055 | H0 |
| JV056* | Q11 |
| JV057 | J4 |
| JV058* | Q10 |
| JV060* | H9 |
| JV061* | Q9 |
| JV062* | N3 |
| JV065* | P8 |
| JV066* | K10 |
| JV068* | Q10 |
| JV069* | P8 |
| JV070* | N6 |
| JV071* | N6 |
| JV074* | N4 |
| JV075* | N4 |
| JV076* | P9 |
| JV077* | M5 |
| JV078* | Q10 |
| JV079* | Q9 |
| JV080 | J1 |
| JV083 | K1 |
| JV085 | C4 |
| JV086 | F1 |
| JV087 | D1 |
| JV089* | N3 |
| JV090* | N5 |
| JV094* | J8 |
| JV095* | Q10 |
| JV096 | E8 |
| JV097 | F7 |
| JV098 | D5 |
| JV099 | F8 |
| JV100 | C4 |
| JV101* | K9 |
| JV102 | J3 |
| JV103 | J3 |
| JV104 | G11 |
| JV105 | E7 |
| JV108 | F7 |
| JV109 | E11 |
| JV110 | F9 |
| JV111 | E7 |
| JV112 | F9 |
| JV113 | F8 |
| JV114 | E7 |
| JV115 | G11 |
| JV117* | R10 |
| JV118 | E8 |
| JV120 | D8 |
| JV122 | E7 |
| JV123* | P5 |
| JV126* | K1 |
| JV129* | P7 |
| JV130* | P8 |
| JV131* | K9 |
| JV139 | F7 |
| JV140* | M8 |
| JV141 | H1 |
| JV142 | G3 |
| JV143 | E9 |
| JV144 | F11 |
| JV145* | M2 |
| JV148 | F11 |
| JV149 | K4 |
| JV150 | E7 |
| JV151 | F8 |
| JV152 | E7 |
| JV153 | J3 |
| JV154 | G6 |
| JV155* | M2 |
| JV156* | M2 |
| JV158* | P10 |
| JV159* | L9 |
| JV160 | G7 |
| JV161 | H7 |
| JV162* | H7 |
| JV163 | J5 |
| JV165 | F6 |
| JV215 | H2 |
| JW001 | R8 |

| | |
|---|---|
| JW002 | S9 |
| JW003 | J1 |
| JW004 | S8 |
| JW005 | R7 |
| JW006 | R3 |
| JW007 | S4 |
| JW008 | S5 |
| JW009* | H9 |
| JW010 | R9 |
| JW011 | R3 |
| JW012 | P0 |
| JW013 | P0 |
| JW014* | H10 |
| JW015* | B3 |
| JW016 | Q9 |
| JW017 | R2 |
| JW018 | N1 |
| JW019* | D12 |
| JW020 | K0 |
| JW025 | R1 |
| JW026* | F12 |
| JW027* | A3 |
| JW032 | L1 |
| JW034 | S3 |
| JW035 | R2 |
| JW036 | N1 |
| JW040 | P1 |
| JW041* | K12 |
| JY002 | G8 |
| JY003 | H7 |
| JY004 | G7 |
| JY006* | K5 |
| JY007* | J5 |
| JY008* | J5 |
| JY009* | K5 |
| JY010* | K5 |
| JY011* | J5 |
| JY012* | L5 |
| JZ001 | A2 |
| JZ002 | D7 |
| JZ003* | S10 |
| JZ004 | C10 |
| JZ005 | K8 |
| JZ006 | K8 |
| JZ007* | R8 |
| JZ008* | R4 |
| JZ009* | R12 |
| JZ010* | R2 |
| JZ011 | C8 |
| JZ012 | C8 |
| JZ014* | R10 |
| JZ015* | R5 |
| JZ016 | C6 |
| JZ017* | R8 |
| JZ018 | A10 |
| JZ019* | R5 |
| JZ020* | P11 |
| JZ021 | C9 |
| JZ022* | S8 |
| JZ023* | H4 |
| JZ024* | K3 |
| JZ025* | K3 |
| JZ030* | P11 |
| JZ040* | R5 |
| JZ041* | R9 |
| JZ042* | S9 |
| JZ045* | S7 |
| JZ046 | C9 |
| JZ048 | B5 |
| JZ049 | B6 |
| JZ051 | F1 |
| JZ052 | C1 |
| JZ053* | Q11 |
| JZ061 | B10 |
| JZ062* | Q2 |
| JZ070 | B7 |
| JZ071 | C9 |
| JZ072* | P3 |
| JZ073* | Q2 |

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|---|---|
| LN430 | P2 |
| LN430* | D9 |
| LN640 | E11 |
| LN641 | Q1 |
| LS030 | L2 |

| | |
|---|---|
| LS030* | G11 |
| LT001 | L11 |
| LT002 | Q6 |
| LT004 | M9 |
| LV008 | F4 |
| LV023* | P3 |
| LV033 | E2 |
| LV050 | G2 |
| LV052 | E1 |
| LV053 | E1 |
| LV063 | D4 |
| LV078 | E6 |
| LV082 | E5 |
| LV107 | D6 |
| LV123 | F12 |
| LV151 | E11 |
| LV153 | F10 |
| LV155 | E10 |
| LV162 | F5 |
| LV200 | H1 |
| LV214 | J2 |
| LV216 | J2 |
| LV226 | H3 |
| LV243 | G3 |
| LV245 | G3 |
| LV246 | G2 |
| LV247 | G3 |
| LV248 | G1 |
| LV251 | F2 |
| LZ001 | A1 |
| LZ002 | A1 |
| LZ030 | A2 |
| LZ031 | A2 |
| LZ050 | A9 |
| LZ051 | A8 |
| LZ055 | A7 |

| | |
|---|---|
| PS034 | K1 |
| PT001 | Q10 |
| PV251 | F2 |

| | |
|---|---|
| QS101 | B11 |
| QS102 | B11 |
| QS103 | B12 |
| QS104 | B11 |
| QT001 | N11 |
| QT002 | Q10 |
| QT003 | Q11 |
| QV028 | E3 |
| QV032 | D2 |

| | |
|---|---|
| RG030* | J4 |
| RG031* | J5 |
| RG032* | M4 |
| RG033* | M4 |
| RG034* | M4 |
| RG035* | M3 |
| RG036* | L3 |
| RG037* | Q11 |
| RG038* | R11 |
| RG101 | J1 |
| RG102 | J1 |
| RG105* | R7 |
| RG106* | Q7 |
| RG107* | Q5 |
| RG108* | Q5 |
| RG109* | E11 |
| RG111* | J11 |
| RG112* | F11 |
| RN431* | D10 |
| RN436 | N1 |
| RN437* | E11 |
| RN439* | D10 |
| RN440* | D10 |
| RN441 | N2 |
| RN640* | B12 |
| RN641* | C11 |

| | |
|---|---|
| RN642* | C11 |
| RN643* | B11 |
| RN644* | B11 |
| RN645* | B12 |
| RN646* | B12 |
| RS030* | F10 |
| RS031* | F10 |
| RS035* | H10 |
| RS036* | F11 |
| RS039* | F10 |
| RS040* | F10 |
| RS042* | G10 |
| RS043* | G10 |
| RS044* | H11 |
| RS045 | M1 |
| RS050 | L2 |
| RS051* | H10 |
| RS101* | Q1 |
| RS102* | R1 |
| RS103* | R1 |
| RS104* | R1 |
| RS105* | Q1 |
| RS106* | R1 |
| RS112* | R2 |
| RS113* | P1 |
| RS114* | P2 |
| RS115* | P1 |
| RS116* | P1 |
| RS119* | R1 |
| RS120* | S3 |
| RS121* | R1 |
| RS122* | Q1 |
| RS127* | Q1 |
| RS128* | Q1 |
| RS130* | Q4 |
| RS901* | R1 |
| RS904* | S2 |
| RS905* | Q2 |
| RS982* | Q1 |
| RS983* | Q1 |
| RT001* | G8 |
| RT002 | N4 |
| RT002* | L3 |
| RT003* | E7 |
| RT004 | N5 |
| RT005* | E6 |
| RT006* | E6 |
| RT007* | G8 |
| RT008* | H8 |
| RT009* | H8 |
| RT010* | G9 |
| RT011* | G9 |
| RT012* | M0 |
| RT013* | E1 |
| RT014 | K6 |
| RT015* | H7 |
| RT016 | P8 |
| RT017* | F3 |
| RT018* | F3 |
| RT019* | F9 |
| RT020* | F8 |
| RT021* | G9 |
| RT022* | G8 |
| RT023* | F9 |
| RT024* | F9 |
| RT025* | F10 |
| RT026* | G8 |
| RT027 | K8 |
| RT030* | H4 |
| RT031* | J3 |
| RT032* | L2 |
| RT033* | K3 |
| RT034* | C4 |
| RT035* | C5 |
| RT036* | D8 |
| RT037* | D8 |
| RT038* | D7 |
| RT039* | D8 |
| RT040 | N8 |
| RT041* | D5 |
| RT042* | D4 |
| RT043* | D5 |
| RT044* | D5 |
| RT045* | D5 |
| RT046* | C4 |
| RT047* | C4 |
| RT048* | C4 |
| RT049* | C3 |

| | |
|---|---|
| RT050* | H4 |
| RT051* | H4 |
| RT052* | B4 |
| RT053 | P11 |
| RT055 | S5 |
| RT058* | E11 |
| RT059* | E11 |
| RT063* | L2 |
| RT064* | L2 |
| RT065* | K3 |
| RT067* | G1 |
| RT068* | F1 |
| RT069* | D1 |
| RT071* | B4 |
| RT072* | B6 |
| RT073* | B6 |
| RT074* | B6 |
| RT075* | C5 |
| RT081* | C5 |
| RT082* | L3 |
| RT083* | G0 |
| RT084* | C1 |
| RT085* | C1 |
| RT086* | G0 |
| RT088* | B7 |
| RT089 | Q5 |
| RT090 | R9 |
| RT091* | D5 |
| RV001* | L9 |
| RV002* | M9 |
| RV003* | L8 |
| RV004* | K8 |
| RV005* | M8 |
| RV006* | M8 |
| RV007* | M8 |
| RV008* | L8 |
| RV010* | M6 |
| RV011* | M8 |
| RV020* | H8 |
| RV021* | P9 |
| RV022* | P9 |
| RV023* | N9 |
| RV024* | N5 |
| RV025* | P9 |
| RV026 | C5 |
| RV027* | P9 |
| RV028* | N10 |
| RV029* | P10 |
| RV030* | P10 |
| RV032* | P10 |
| RV035* | R9 |
| RV036* | N10 |
| RV041* | N10 |
| RV044* | M9 |
| RV045* | M9 |
| RV046* | M9 |
| RV047* | L10 |
| RV048* | Q10 |
| RV049* | M9 |
| RV050* | L10 |
| RV051* | N11 |
| RV052* | M12 |
| RV053* | K11 |
| RV054* | N11 |
| RV055* | N12 |
| RV056* | N11 |
| RV067 | E4 |
| RV070* | P8 |
| RV071* | P8 |
| RV072* | N8 |
| RV073* | P6 |
| RV074* | N6 |
| RV075* | P6 |
| RV076* | N7 |
| RV077* | N7 |
| RV104* | P9 |
| RV105* | P6 |
| RV106* | P6 |
| RV109* | P6 |
| RV110* | P6 |
| RV111* | L4 |
| RV112* | P6 |
| RV120* | M1 |
| RV121* | L1 |
| RV122* | L1 |
| RV123* | K1 |
| RV124* | K1 |
| RV125* | K2 |

| | |
|---|---|
| RV126* | P6 |
| RV127* | P5 |
| RV128* | K1 |
| RV129* | K2 |
| RV130* | L2 |
| RV131* | K1 |
| RV135 | G11 |
| RV137* | N2 |
| RV138* | M2 |
| RV139* | M3 |
| RV140* | N2 |
| RV141* | N2 |
| RV142* | M2 |
| RV143* | M2 |
| RV144 | G10 |
| RV145* | M3 |
| RV146* | N2 |
| RV147* | M2 |
| RV148* | M3 |
| RV150* | M1 |
| RV151* | M1 |
| RV154* | N1 |
| RV160* | M7 |
| RV161* | M6 |
| RV163* | M7 |
| RV164* | L4 |
| RV165* | L4 |
| RV166* | M7 |
| RV167* | M7 |
| RV168* | M7 |
| RV169* | Q4 |
| RV170* | J9 |
| RV171* | H9 |
| RV181* | L10 |
| RV182* | K9 |
| RV183* | J9 |
| RV184* | K9 |
| RV185* | K9 |
| RV186* | J8 |
| RV187* | K8 |
| RV188* | K9 |
| RV189* | J8 |
| RV190* | J8 |
| RV191* | K9 |
| RV192* | K9 |
| RV194* | J8 |
| RV200* | L10 |
| RV201* | K11 |
| RV202* | K10 |
| RV203* | K10 |
| RV204* | K11 |
| RV206* | K11 |
| RV213* | J10 |
| RV214* | J10 |
| RV215* | J10 |
| RV221* | J9 |
| RV222* | J9 |
| RV223* | J9 |
| RV224* | J9 |
| RV225* | J9 |
| RV227* | J10 |
| RV241* | L9 |
| RV242* | K9 |
| RV243* | L9 |
| RV244* | L9 |
| RV245* | L10 |
| RV247* | L9 |
| RV248* | L10 |
| RV249* | L11 |
| RV250* | L10 |
| RV251* | L10 |
| RV252* | M11 |
| RV253* | M10 |
| RV254* | M10 |
| RV255* | M11 |
| RV256* | M11 |
| RV257* | M10 |
| RV285* | K10 |
| RW001* | D9 |
| RW002* | C9 |
| RW005* | A4 |
| RW006 | S10 |
| RW008 | R2 |
| RW009 | R2 |
| RW012 | P1 |
| RW017* | A5 |
| RW019* | C10 |
| RW020* | B10 |

| | |
|---|---|
| RW021 | M0 |
| RW024* | B9 |
| RW025* | B9 |
| RW029 | Q3 |
| RW030 | Q1 |
| RW031 | Q0 |
| RW032* | B4 |
| RW033* | C9 |
| RY001* | L4 |
| RY002* | L4 |
| RY003* | L4 |
| RY004* | L4 |
| RY006* | L4 |
| RY007* | L4 |
| RY009* | L4 |
| RY010* | L5 |
| RY011* | M5 |
| RZ002* | P11 |
| RZ003* | P11 |
| RZ005* | R4 |
| RZ007* | H4 |
| RZ008* | H4 |
| RZ010* | R3 |
| RZ015 | A4 |
| RZ019* | R5 |
| RZ020* | S6 |
| RZ030* | R10 |
| RZ031* | R10 |
| RZ033* | S10 |
| RZ034* | R10 |
| RZ035* | R10 |
| RZ036* | R10 |
| RZ037* | S11 |
| RZ050* | S3 |
| RZ051* | S3 |
| RZ052* | S5 |
| RZ053* | S5 |
| RZ054* | R3 |
| RZ055* | S10 |
| RZ056* | S5 |
| RZ057* | S6 |
| RZ059* | R4 |
| RZ060* | R11 |
| RZ065 | G1 |
| RZ066 | G1 |

| | |
|---|---|
| ST001 | E12 |
| ST001* | N0 |

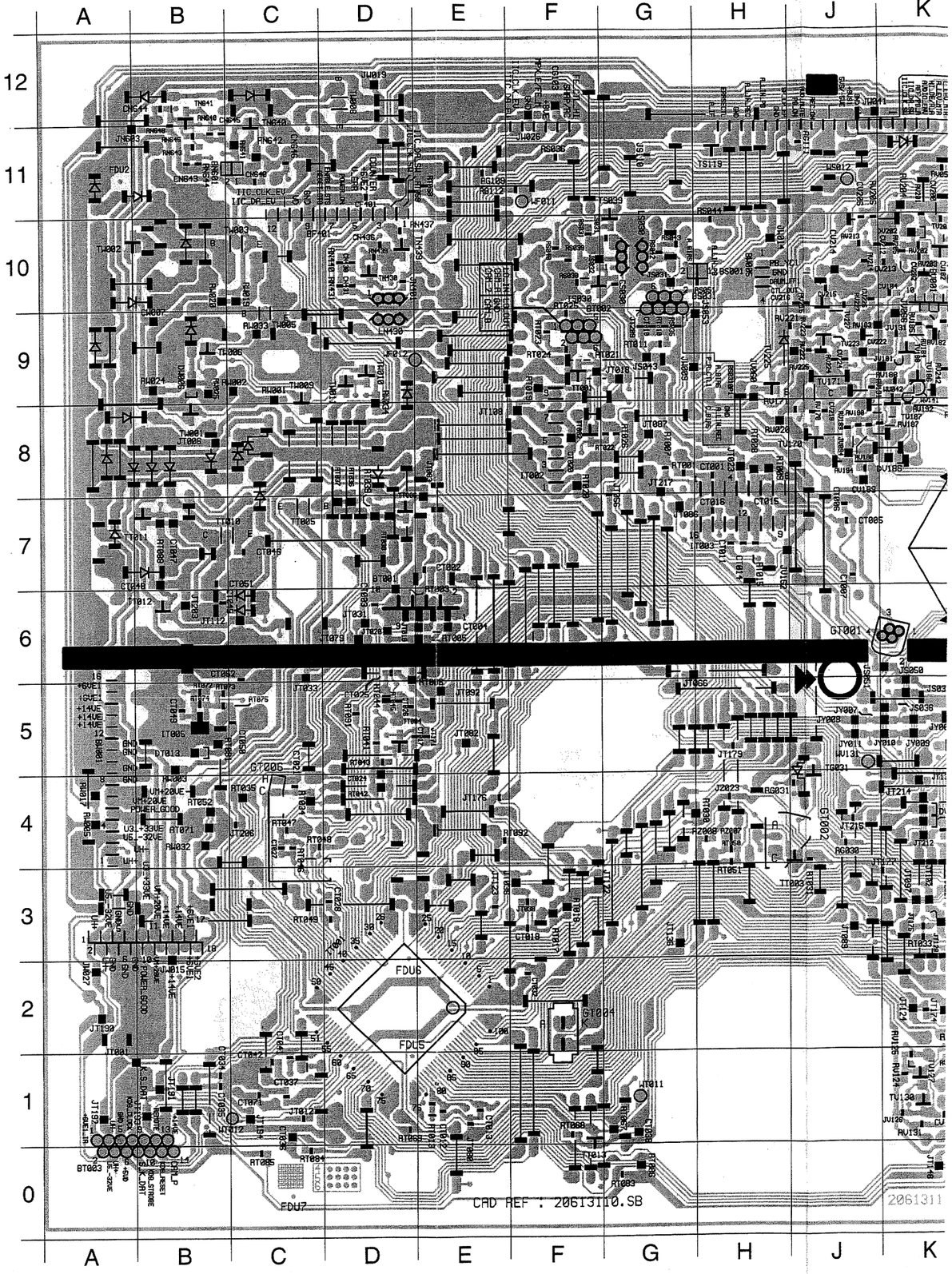
| | |
|---|---|
| GT001 | J6 |
| GT001* | J6 |
| GT002 | J9 |
| GT002* | J4 |
| GT003 | H10 |
| GT003* | L2 |
| GT004* | F2 |
| GT005 | D7 |
| GT005* | P4 |
| GT006 | Q8 |
| GT006* | C5 |
| TG029* | M5 |
| TG030* | M4 |
| TG031* | J5 |
| TN438* | D10 |
| TN439* | E10 |
| TN640* | C12 |
| TN641* | B12 |
| TS030* | F10 |
| TS039* | G11 |
| TS101* | Q3 |
| TS119* | H11 |
| TT001* | F9 |
| TT002* | F8 |
| TT003* | J3 |
| TT004* | D5 |
| TT005* | P5 |
| TT005* | C7 |
| TT006* | D8 |
| TT010 | Q5 |

| | |
|---|---|
| TT010* | C7 |
| TT011* | B7 |
| TT012* | B7 |
| TT013* | F1 |
| TV002* | L8 |
| TV003* | M8 |
| TV006* | M8 |
| TV011* | M8 |
| TV024* | N5 |
| TV028* | N10 |
| TV030* | P10 |
| TV036* | N11 |
| TV047* | M10 |
| TV055* | N11 |
| TV103* | Q6 |
| TV126* | P5 |
| TV127* | K1 |
| TV130* | K1 |
| TV135* | M2 |
| TV140* | M2 |
| TV141* | N2 |
| TV143* | M2 |
| TV145* | M2 |
| TV147* | M3 |
| TV149* | N3 |
| TV154* | N2 |
| TV164* | M4 |
| TV170* | J8 |
| TV171 | J3 |
| TV171* | J9 |
| TV186* | K9 |
| TV187* | K8 |
| TV188* | K9 |
| TV200* | K11 |
| TV201* | K11 |
| TV223* | J9 |
| TV225* | H9 |
| TV227* | J10 |
| TV243* | L9 |
| TV248* | L10 |
| TV250* | M11 |
| TV251* | M10 |
| TW001* | B8 |
| TW002* | A10 |
| TW003 | Q1 |
| TW003* | C10 |
| TW005 | Q2 |
| TW005* | C9 |
| TW006* | B9 |
| TW008 | P0 |
| TW008* | D12 |
| TW009* | C9 |
| TZ001* | R4 |
| TZ002* | Q3 |
| TZ010* | R2 |
| TZ019* | R4 |
| TZ020* | R6 |
| TZ031* | S9 |
| TZ032* | R11 |
| TZ050* | R3 |
| TZ051* | S4 |
| TZ055* | S5 |
| TZ057* | R10 |

| | |
|---|---|
| WS011 | C10 |
| WS011* | Q2 |
| WS012 | J1 |
| WS012* | J11 |
| WV011 | G3 |
| WV011* | K9 |
| WV012 | C3 |
| WV012* | R9 |
| WV021 | D4 |
| WV021* | P9 |
| WV022 | D3 |
| WV022* | P9 |
| WV031 | C8 |
| WV031* | Q4 |
| WV032 | F6 |
| WV032* | M6 |



## Main P.C.B. Solder side • Circuit imprimé de la platine principa
## Piastra principale lato saldatura • Platina p



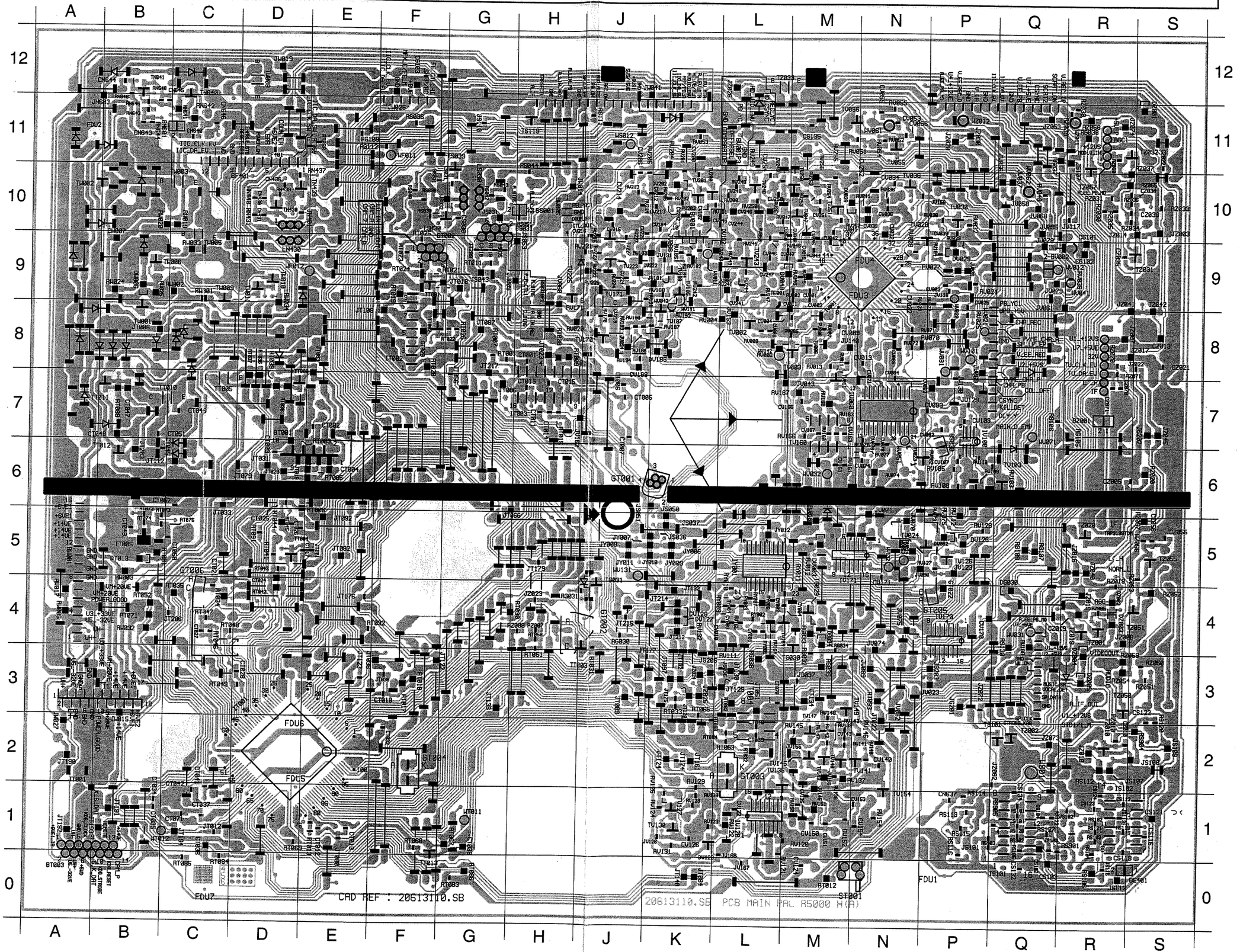



Updated

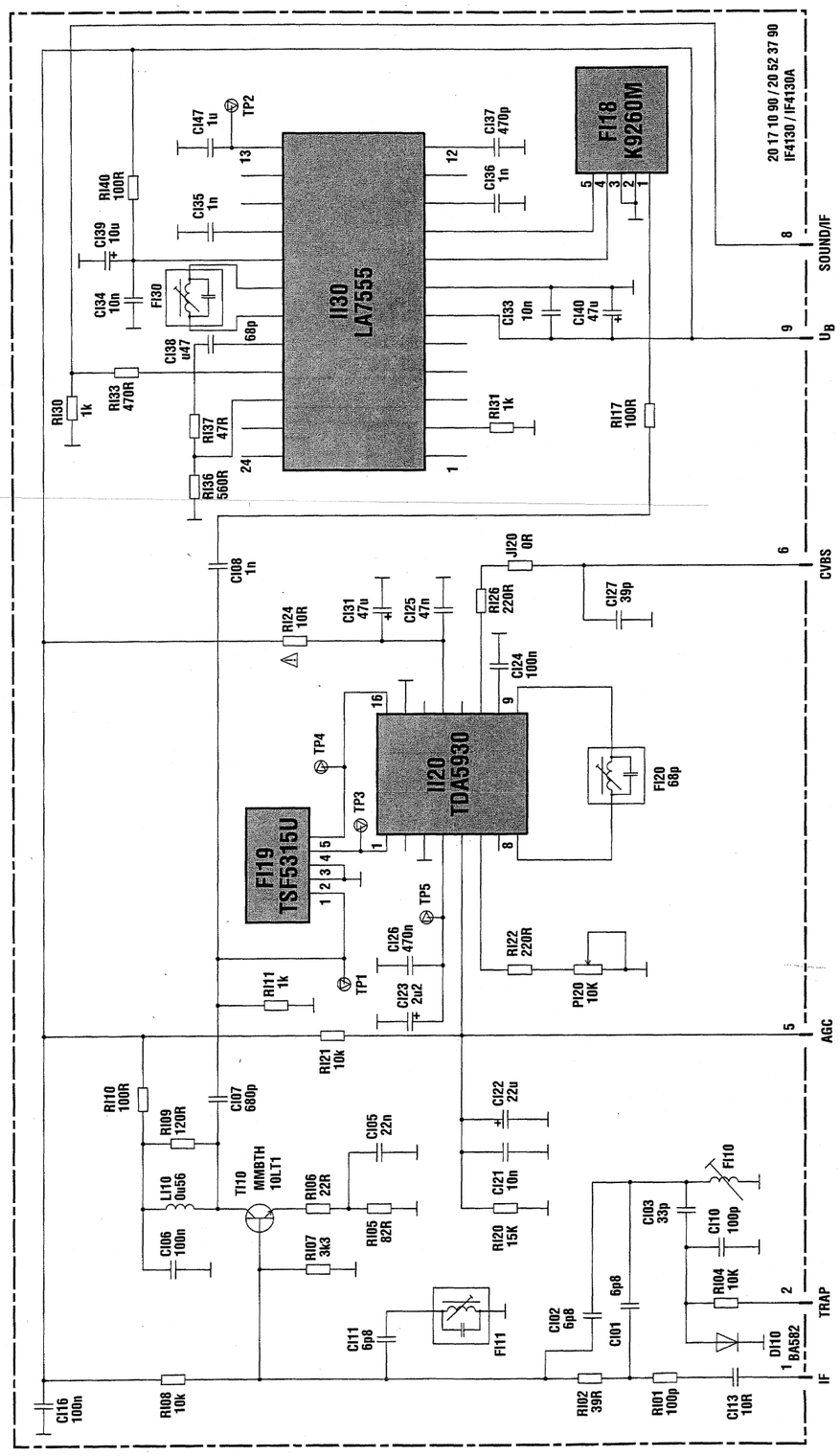
10* C7
11* B7
12* B7
13* F1
02* L8
03* M8
06* M8
11* M8
24* N5
28* N10
30* P10
36* N11
47* M10
55* N11
03* Q6
26* P5
27* K1
30* K1
35* M2
40* M2
41* N2
43* M2
45* M2
47* M3
49* N3
54* N2
64* M4
70* J8
71 J3
71* J9
76* K9
77* K8
78* K9
80* K11
81* K11
83* J9
85* H9
87* J10
93* L9
93* L10
90* M11
91* M10
91* B8
92* A10
3 Q1
3* C10
5 Q2
5 C9
5* B9
3 P0
8* D12
9* C9
* R4
* Q3
* R2
* R4
* R6
* S9
* R11
* R3
* S4
* S5
* R10

C10
* Q2
J1
J11
G3
* K9
C3
* R9
D4
P9
D3
* P9
C8
* Q4
F6
* M6

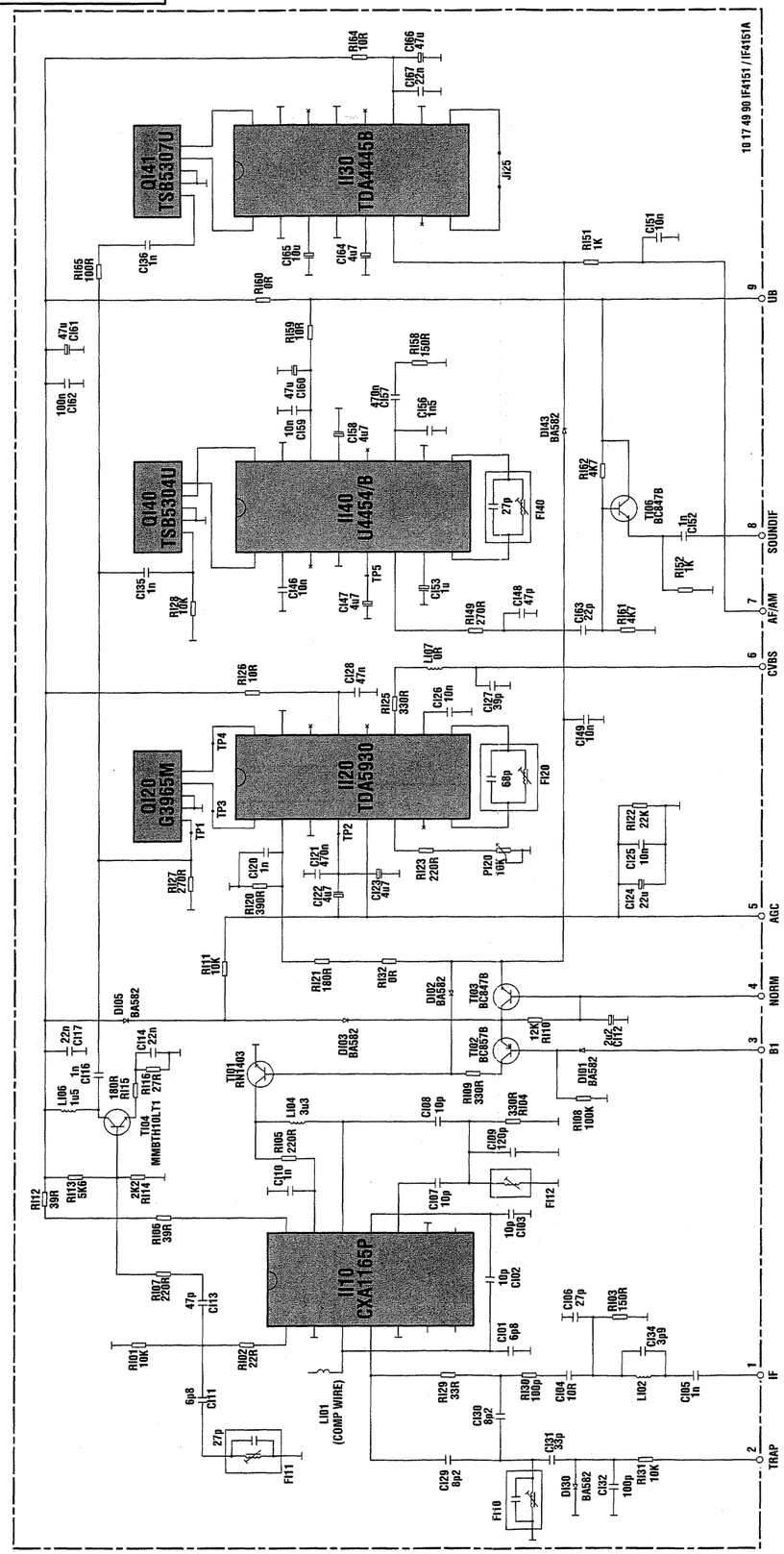
## Main P.C.B. Solder side • Circuit imprimé de la platine principale côté cuivre • Hauptleiterplatte Lötseite
## Piastra principale lato saldature • Platina principal lado del cobre



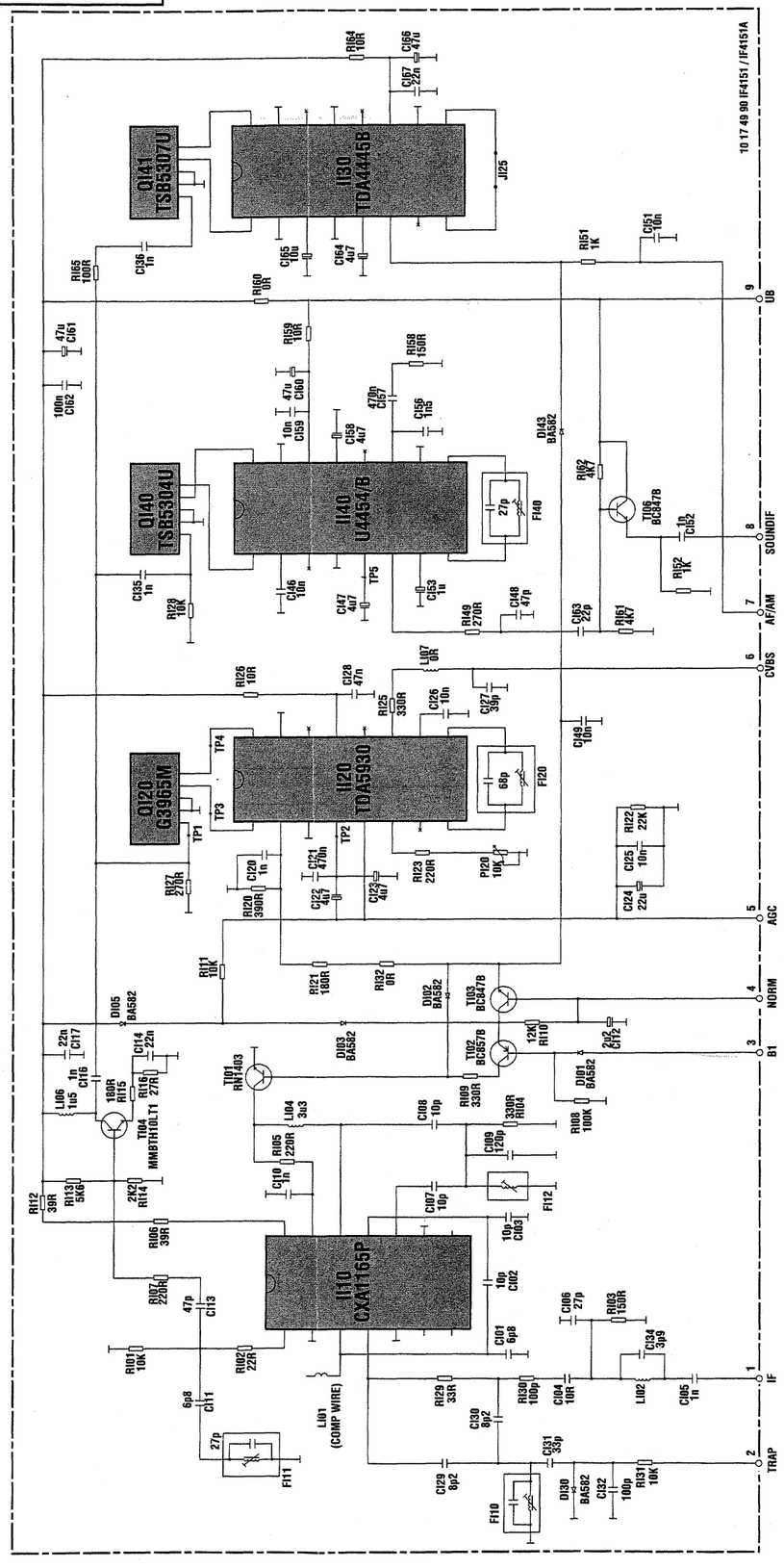
## IF 4130 / 4130 A




## IF 4151 / 4151 A

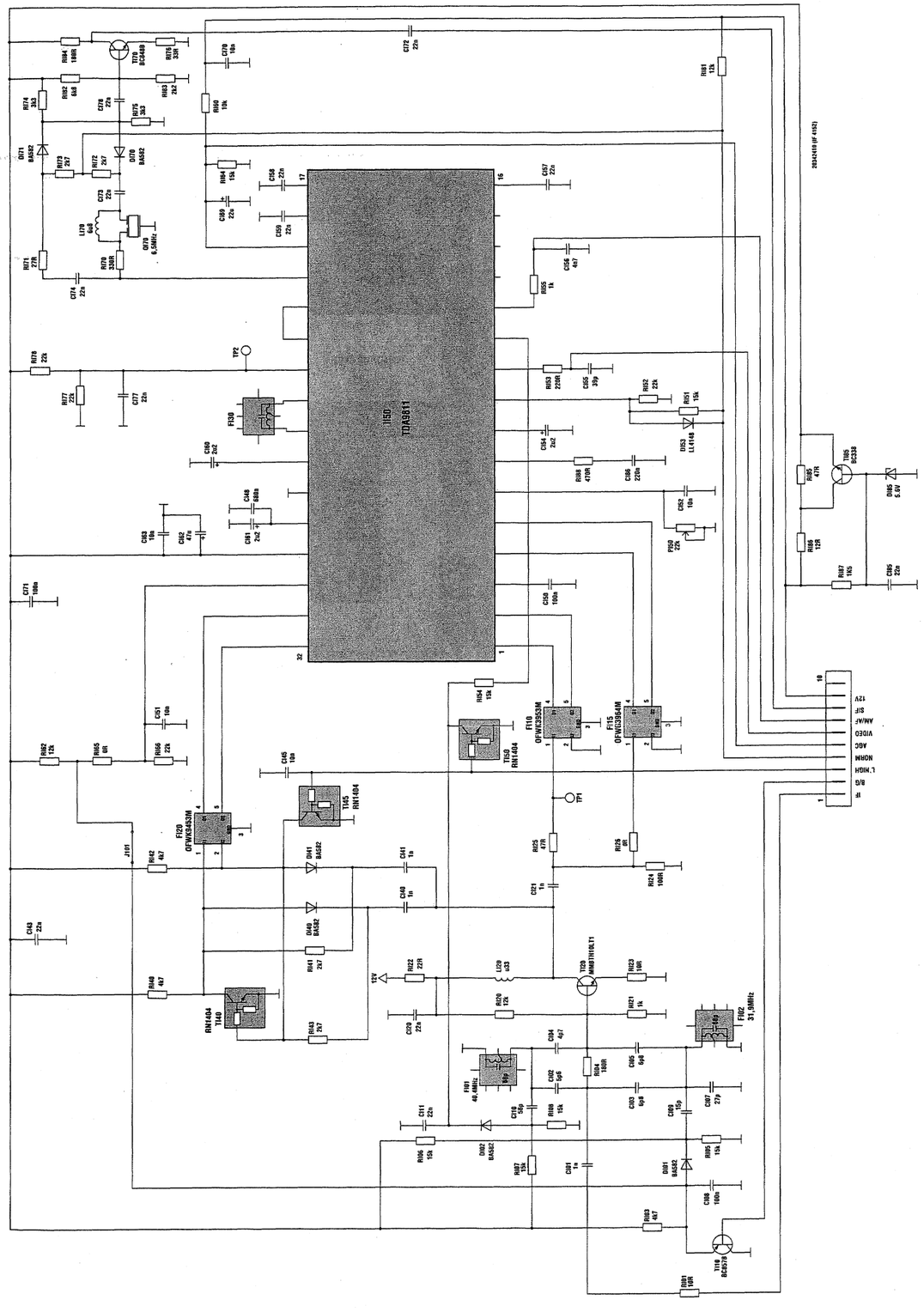


# IF 4151 / 4151 A



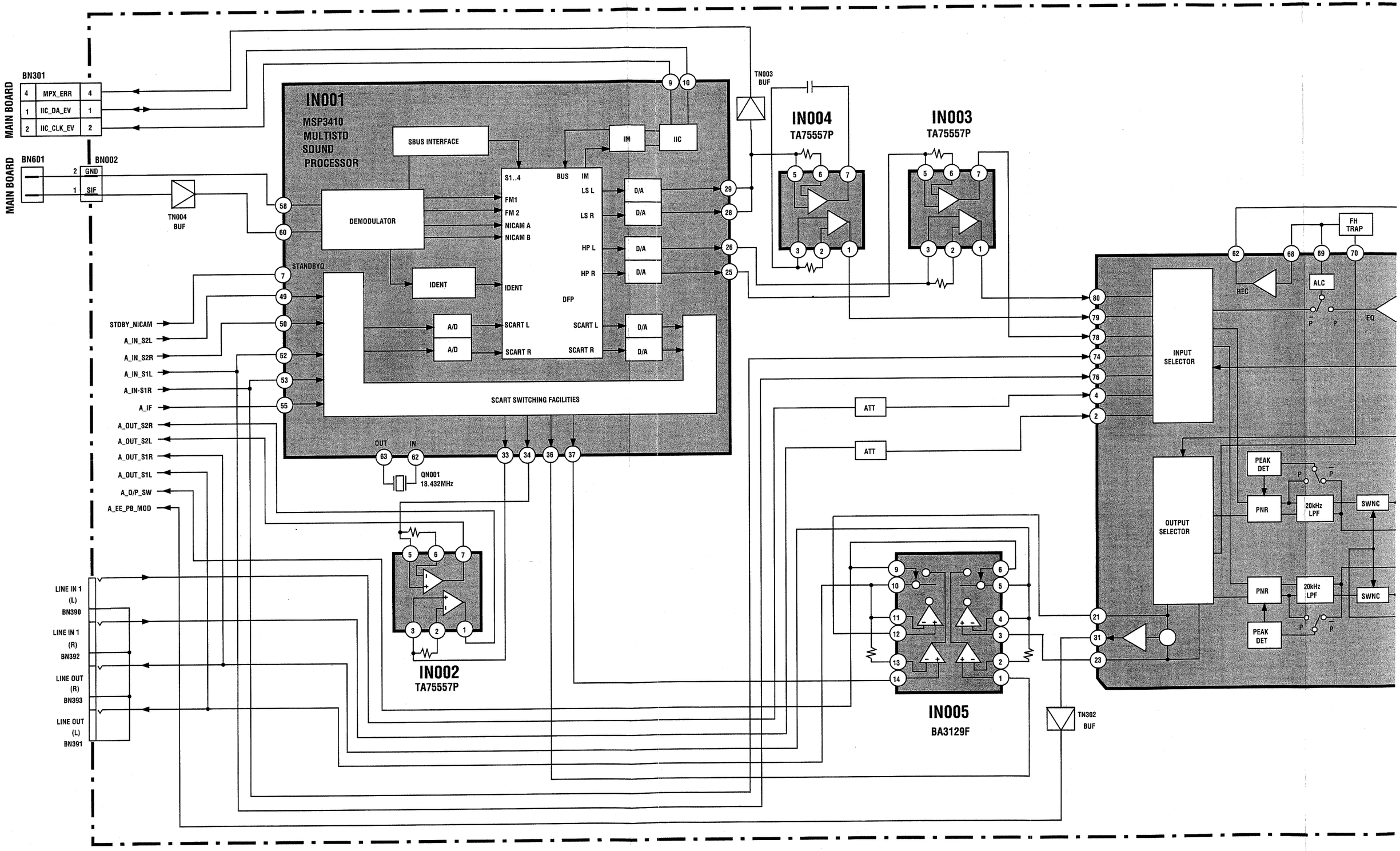



# IF 4152

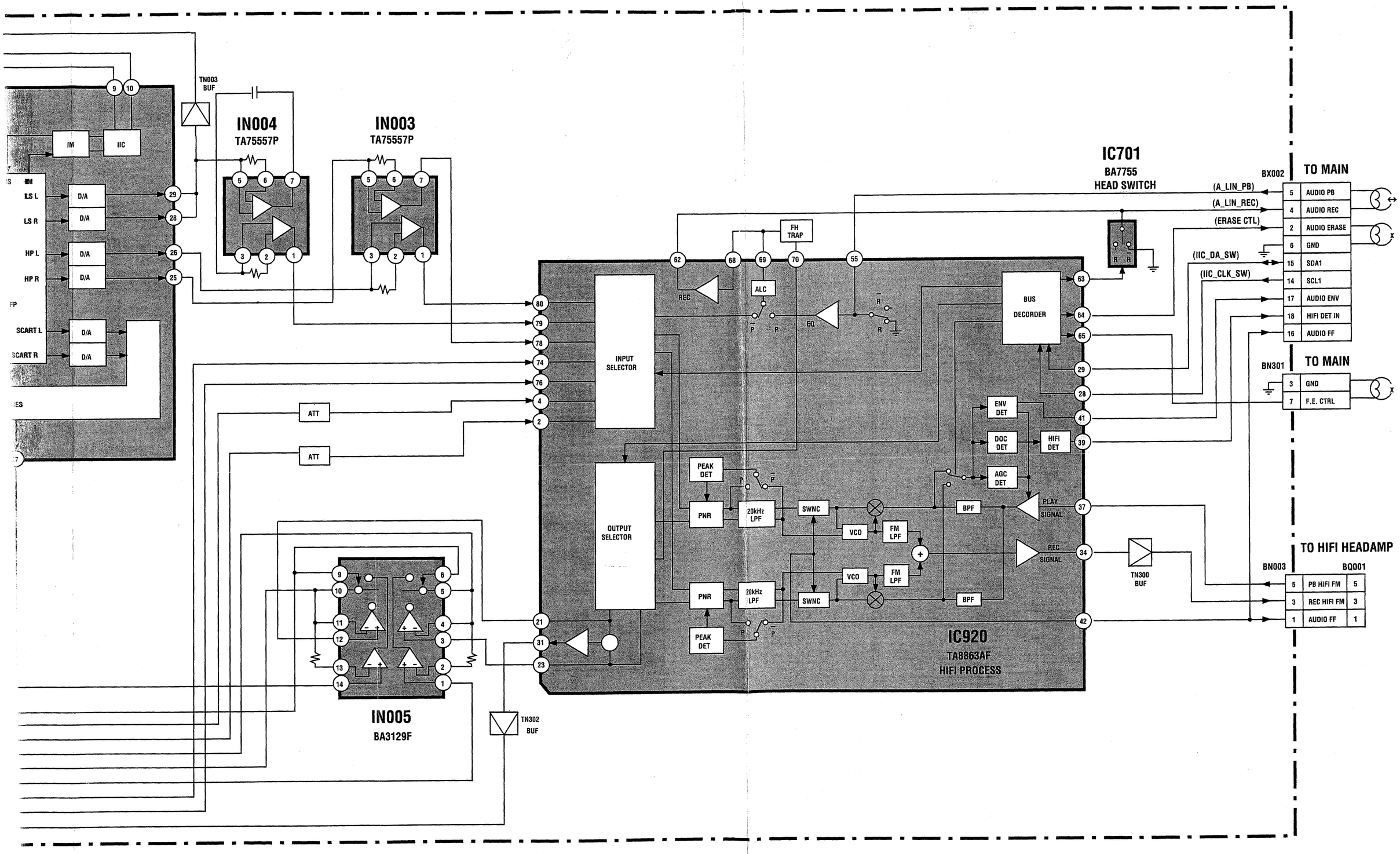


# AUDIO HIFI / SCART CONNECTION BOARD - PLATINE AUDIO HIFI / PRISES SCART - LEITERPLATTE AUDIO HIFI / SCART - PIASTRA AUDIO HIFI / SCART - PLATINA A

## BLOCK DIAGRAM - SCHEMA SYNOPTIQUE - BLOCKSCHALTBILD - SCHEMA A BLOCCHI - ESQUEMA DE BLOQUES



BLOCCHI - ESQUEMA DE BLOQUES



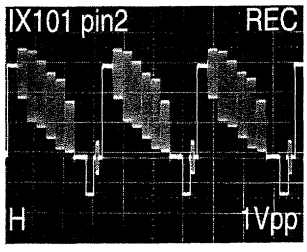
# MEASUREMENTS AUDIO HIFI / SCART CONNECTION - MESURES AUDIO HIFI / PRISES SCART - MESSUNGEN LEITERPLATTE AUDIO HIFI / SCART - MISURI AUDIO HIFI / SCART - MEDIDAS AUDIO HIFI / SCART

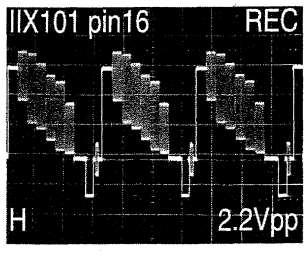
| TMB | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| IN001 | 1 | 0 | 0 | 0 |
| | 2 | 3.8 | 3.6 | 3.8 |
| | 3 | 3.8 | 3.6 | 3.8 |
| | 4 | 0 | 0 | 0 |
| | 5 | 5 | 5 | 5 |
| | 6 | 0 | 0 | 0 |
| | 7 | 5.8 | 5.8 | 5.8 |
| | 8 | 0 | 0 | 0 |
| | 9 | 4.6 | 4.6 | 4.6 |
| | 10 | 4.2 | 4.2 | 4.2 |
| | 11 | 2.5 | 2.5 | 2.5 |
| | 12 | 2.5 | 2.5 | 2.5 |
| | 13 | 4 | 4 | 4 |
| | 14 | 2.4 | 2.4 | 2.4 |
| | 15 | 2.4 | 2.4 | 2.4 |
| | 16 | 2.4 | 2.4 | 2.4 |
| | 17 | 1.6 | 1.6 | 1.6 |
| | 18 | 5 | 5 | 5 |
| | 19 | 0 | 0 | 0 |
| | 20 | 1.6 | 1.6 | 1.6 |
| | 21 | - | - | - |
| | 22 | 2.5 | 2.5 | 2.5 |
| | 23 | - | - | - |
| | 24 | 5 | 5 | 5 |
| | 25 | 2 | 2 | 2 |
| | 26 | 2 | 2 | 2 |
| | 27 | 0 | 0 | 0 |
| | 28 | 2 | 2 | 2 |
| | 29 | 1.9 | 1.9 | 1.9 |
| | 30 | 0 | 0 | 0 |
| | 31 | 3.8 | 3.8 | 3.8 |
| | 32 | 3.8 | 3.8 | 3.8 |
| | 33 | 3.8 | 3.8 | 3.8 |
| | 34 | 3.8 | 3.8 | 3.8 |
| | 35 | 0 | 0 | 0 |
| | 36 | 3.8 | 3.8 | 3.8 |
| | 37 | 3.8 | 3.8 | 3.8 |
| | 38 | 6.4 | 6.4 | 6.4 |
| | 39 | 8.3 | 8.3 | 8.3 |
| | 40 | 6.4 | 6.4 | 6.4 |
| | 41 | 0 | 0 | 0 |
| | 42 | 3.8 | 3.8 | 3.8 |
| | 43 | 3.8 | 3.8 | 3.8 |
| | 44 | 3.8 | 3.8 | 3.8 |
| | 45 | 3.8 | 3.8 | 3.8 |
| | 46 | 3.8 | 3.8 | 3.8 |
| | 47 | 3.8 | 3.8 | 3.8 |
| | 48 | 0 | 0 | 0 |
| | 49 | 3.8 | 3.8 | 3.8 |
| | 50 | 3.8 | 3.8 | 3.8 |
| | 51 | 0 | 0 | 0 |
| | 52 | 3.8 | 3.8 | 3.8 |
| | 53 | 3.8 | 3.8 | 3.8 |

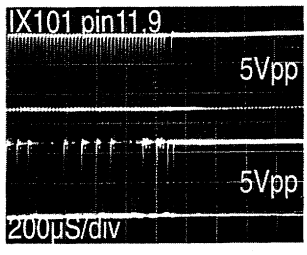
| TMB | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| | 54 | 2.6 | 2.6 | 2.6 |
| | 55 | 3.8 | 3.8 | 3.8 |
| | 56 | 0 | 0 | 0 |
| | 57 | 5 | 5 | 5 |
| | 58 | 0 | 0 | 0 |
| | 59 | 1.5 | 1.5 | 1.5 |
| | 60 | 1.5 | 1.5 | 1.5 |
| | 61 | 0 | 0 | 0 |
| | 62 | 2.6 | 2.6 | 2.6 |
| | 63 | 2.6 | 2.6 | 2.6 |
| | 64 | 0 | 0 | 0 |
| IN002 | 1 | 6.3 | 6.3 | 6.3 |
| | 2 | 6.3 | 6.3 | 6.3 |
| | 3 | 6.1 | 6.1 | 6.1 |
| | 4 | 0 | 0 | 0 |
| | 5 | 6.1 | 6.1 | 6.1 |
| | 6 | 6.3 | 6.3 | 6.3 |
| | 7 | 6.3 | 6.3 | 6.3 |
| | 8 | 12.6 | 12.6 | 12.6 |
| IN003 | 1 | 4.4 | 4.4 | 4.4 |
| | 2 | 4.4 | 4.4 | 4.4 |
| | 3 | 4.2 | 4.2 | 4.2 |
| | 4 | 0 | 0 | 0 |
| | 5 | 4.2 | 4.2 | 4.2 |
| | 6 | 4.4 | 4.4 | 4.4 |
| | 7 | 4.4 | 4.4 | 4.4 |
| | 8 | 8.7 | 8.7 | 8.7 |
| IN004 | 1 | 4.4 | 4.4 | 4.4 |
| | 2 | 4.4 | 4.4 | 4.4 |
| | 3 | 4.3 | 4.3 | 4.3 |
| | 4 | 0 | 0 | 0 |
| | 5 | 4.1 | 4.1 | 4.1 |
| | 6 | 4.4 | 4.4 | 4.4 |
| | 7 | 4.4 | 4.4 | 4.4 |
| | 8 | 8.7 | 8.7 | 8.7 |
| IN005 | 1 | 6.7 | 6.7 | 6.7 |
| | 2 | 6.7 | 6.7 | 6.7 |
| | 3 | 6.7 | 6.7 | 6.7 |
| | 4 | 6.9 | 6.9 | 6.9 |
| | 5 | 6.9 | 6.9 | 6.9 |
| | 6 | 7.2 | 7.2 | 7.2 |
| | 7 | 0 | 0 | 0 |
| | 8 | 12.5 | 12.5 | 12.5 |
| | 9 | 7.2 | 7.2 | 7.2 |
| | 10 | 6.9 | 6.9 | 6.9 |
| | 11 | 6.9 | 6.9 | 6.9 |
| | 12 | 6.7 | 6.7 | 6.7 |
| | 13 | 6.9 | 6.9 | 6.9 |
| | 14 | 6.7 | 6.7 | 6.7 |

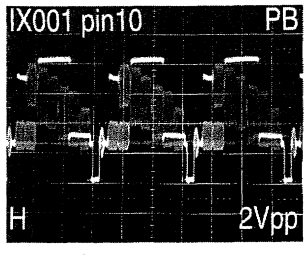
# MEASUREMENTS AUDIO HIFI / SCART CONNECTION - MESURES AUDIO HIFI / PRISES SCART - MESSUNGEN LEITERPLATTE AUDIO HIFI / SCART - MISURI AUDIO HIFI / SCART - MEDIDAS AUDIO HIFI /SCART

| TMB | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| IN006 | 1 | 8.5 | 8.5 | 8.5 |
| | 2 | 0 | 0 | 0 |
| | 3 | 0 | 0 | 0 |
| | 4 | 0 | 0 | 0 |
| | 5 | 5.3 | 5.3 | 5.3 |
| IX101 | 1 | 0 | 0 | 0 |
| | 2 | 1.2 | 1.2 | 1.2 |
| | 3 | 5.8 | 5.8 | 5.8 |
| | 4 | 1.6 | 1.6 | 1.6 |
| | 5 | 5.8 | 5.8 | 5.8 |
| | 6 | 1.8 | 1.8 | 1.8 |
| | 7 | 3.7 | 3.7 | 3.7 |
| | 8 | 1.4 | 1.4 | 1.4 |
| | 9 | 0 | 0 | 0 |
| | 10 | 2.4 | 2.4 | 2.4 |
| | 11 | 0 | 0 | 0 |
| | 12 | 1.4 | 1.4 | 1.4 |
| | 13 | 0 | 0 | 0 |
| | 14 | 0 | 0 | 0 |
| | 15 | 1.3 | 1.3 | 1.3 |
| | 16 | 1.8 | 1.8 | 1.8 |
| | 17 | 0 | 0 | 0 |
| | 18 | 5.8 | 5.8 | 5.8 |
| | 19 | 5.8 | 5.8 | 5.8 |
| | 20 | 5.8 | 5.8 | 5.8 |
| TN001 | E | 0 | 0 | 0 |
| | B | 3.7 | 3.7 | 3.7 |
| | C | 0 | 0 | 0 |
| TN002 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 5 | 5 | 5 |
| TN003 | E | 0 | 0 | 0 |
| | B | 0.6 | 0.6 | 0.6 |
| | C | 0 | 0 | 0 |
| TN004 | E | 4.1 | 4.1 | 4.1 |
| | B | 4.7 | 4.7 | 4.7 |
| | C | 8.4 | 8.4 | 8.4 |
| TN300 | E | 0.6 | 0.6 | 1.2 |
| | B | 0 | 0 | 0.6 |
| | C | 0 | 0 | 0 |
| TN302 | E | 4.9 | 4.9 | 4.9 |
| | B | 4.3 | 4.3 | 4.3 |
| | C | 0 | 0 | 0 |

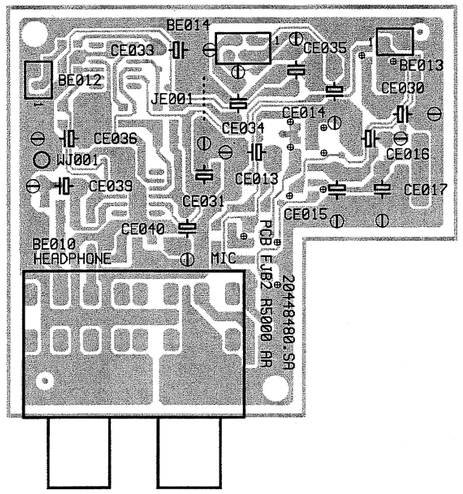


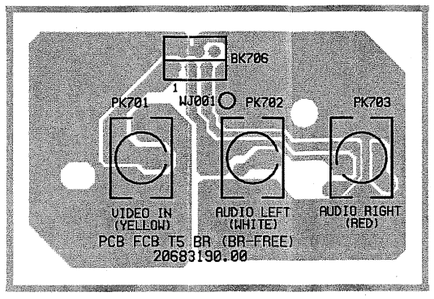



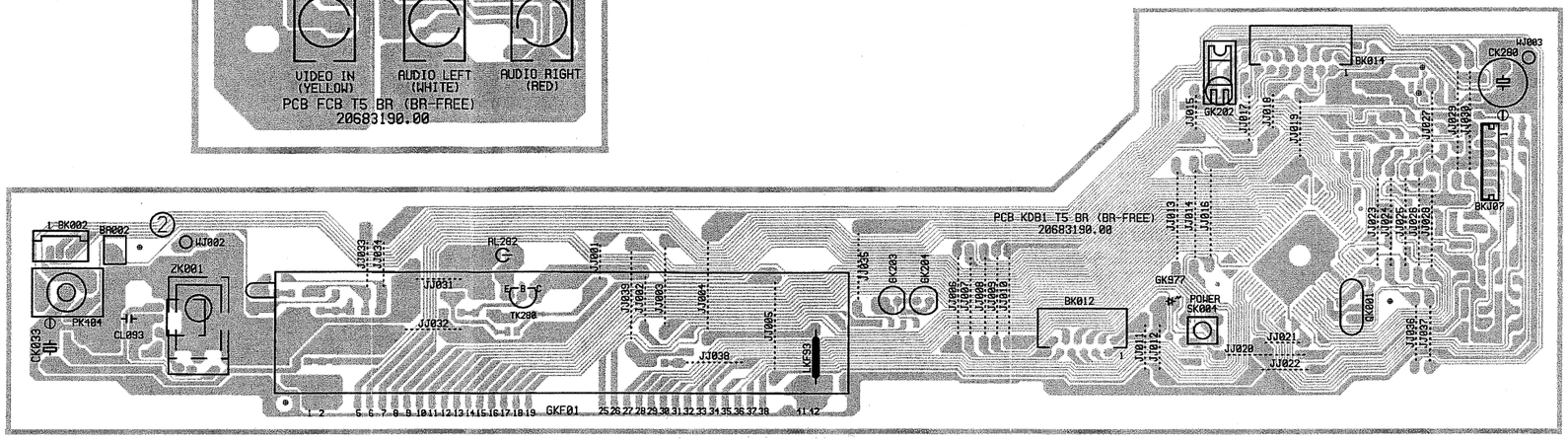
KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR **(THOMSON : VPH 6780 - VPH 6790)**

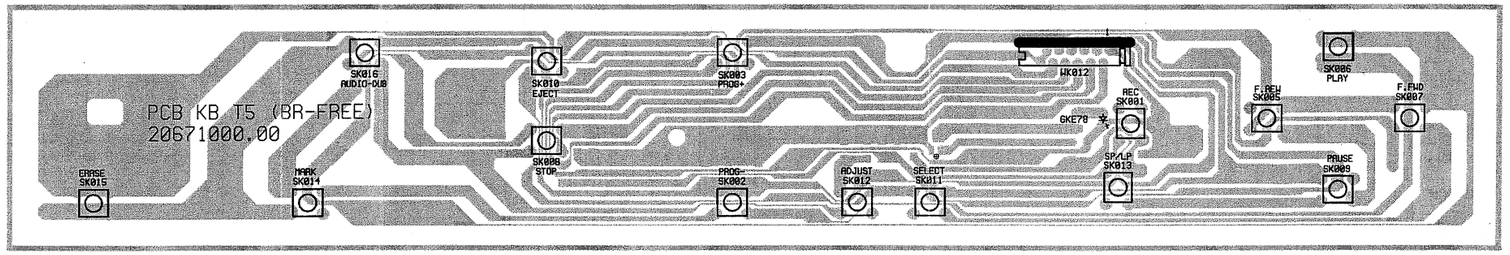


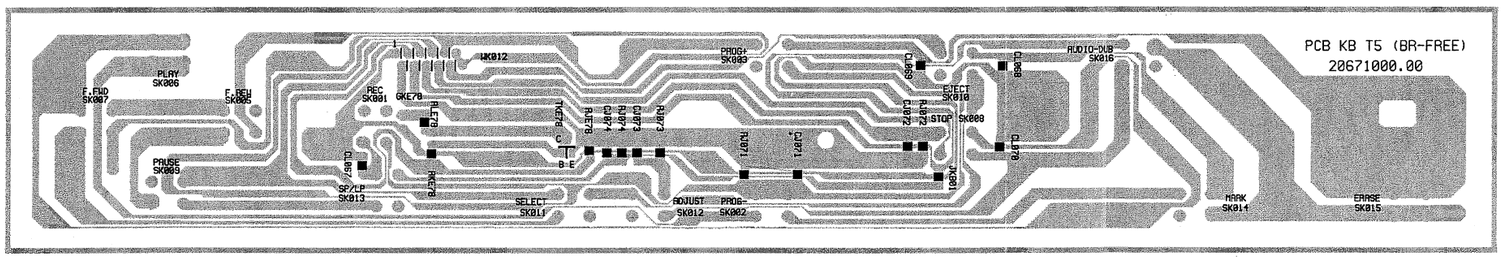

Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

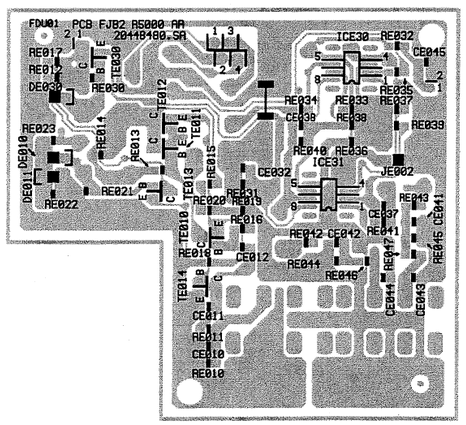
Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

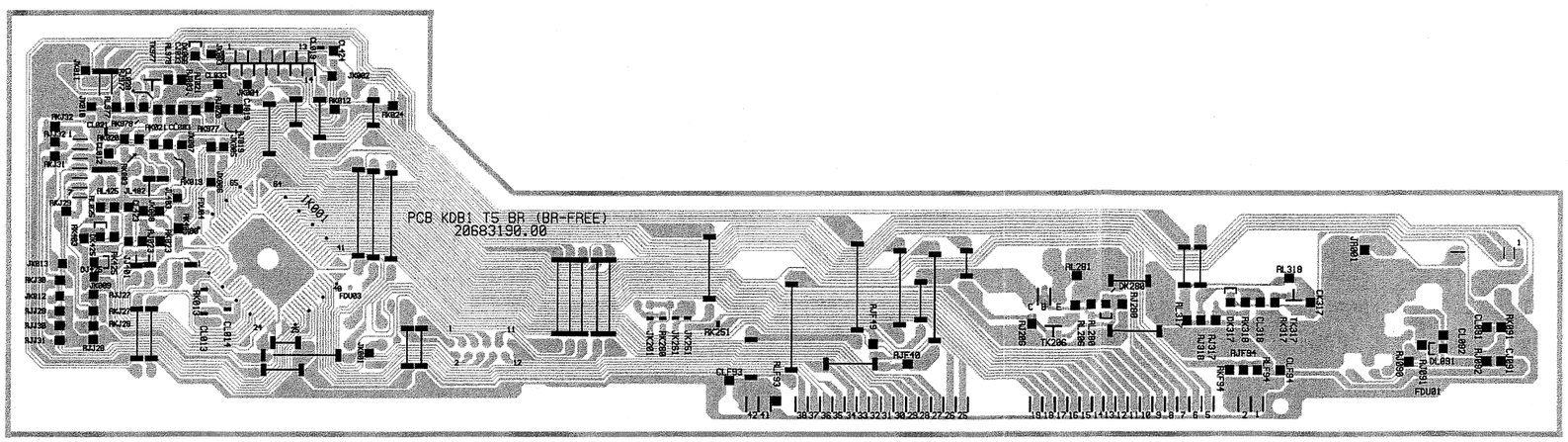


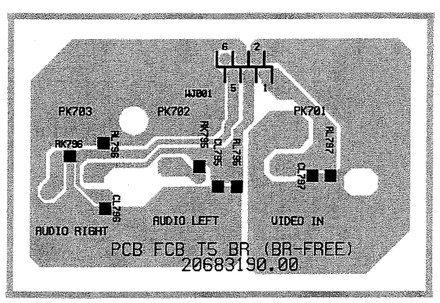



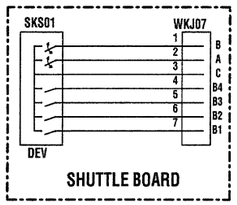



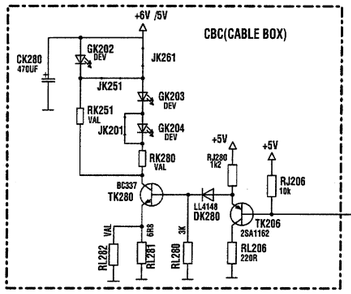



# KEYBOARD WITH DISPLAY - PLATINE DE COMMANDES AVEC AFFICHEUR - BEDIENTEIL MIT DISPLAY - TASTIERA CON DISPLAY - PLATINA MANDOS CON VISUALIZADOR ( THOMSON: VPH 6780 - VPH 6790 )

## SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA



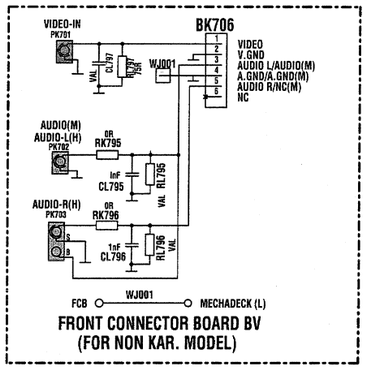
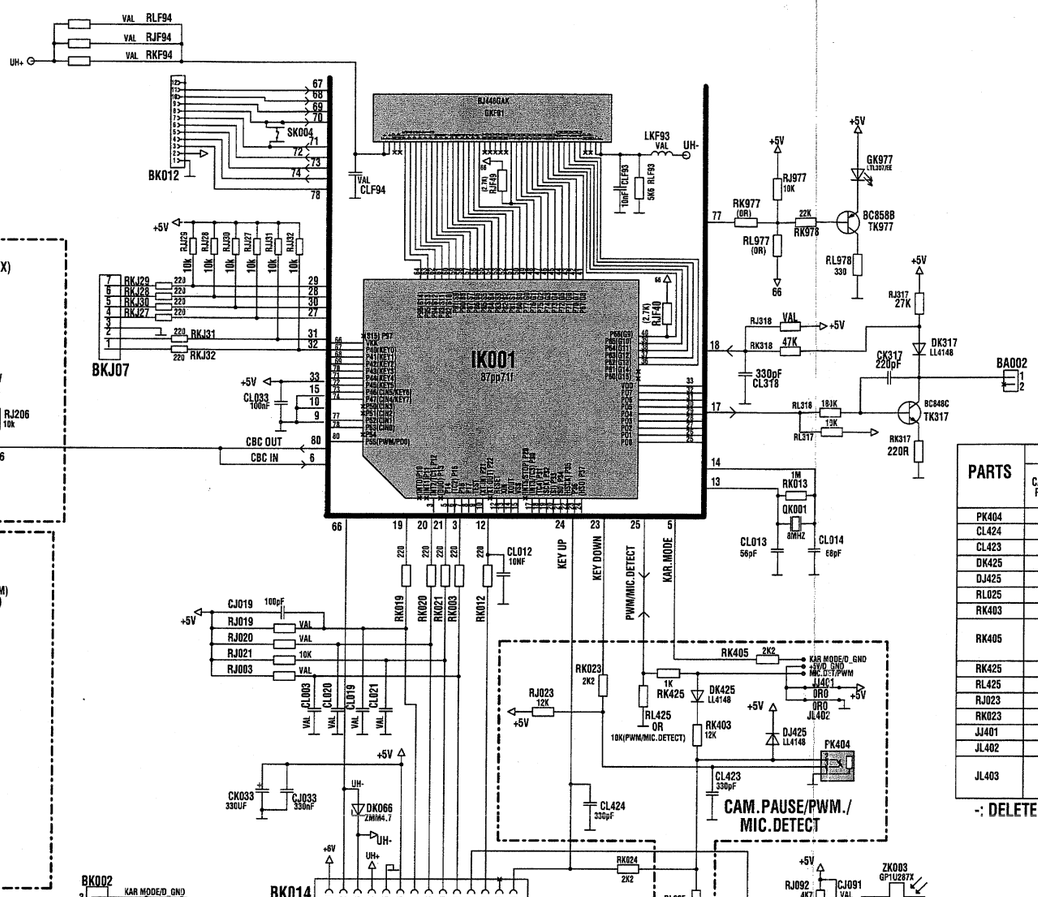



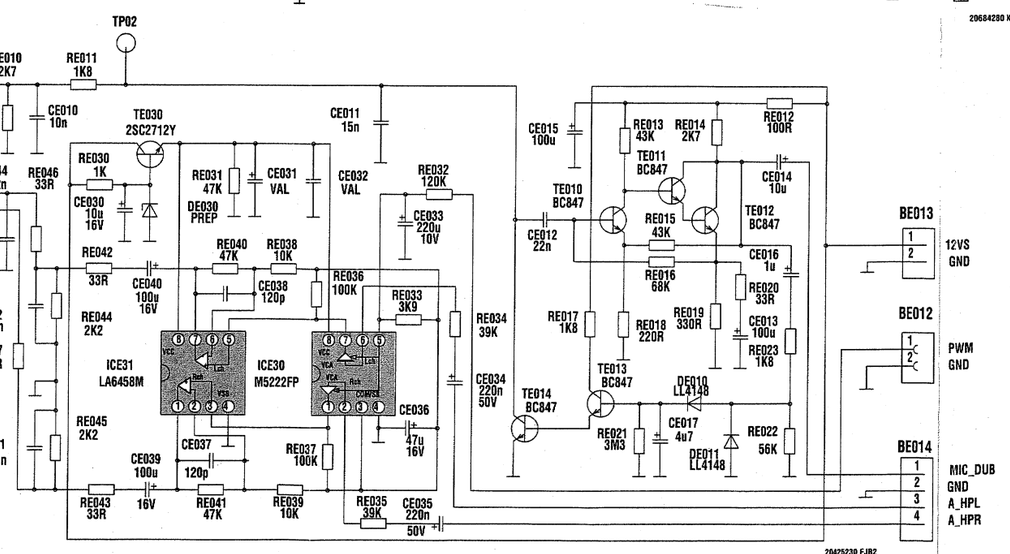

TABLE FOR CBC

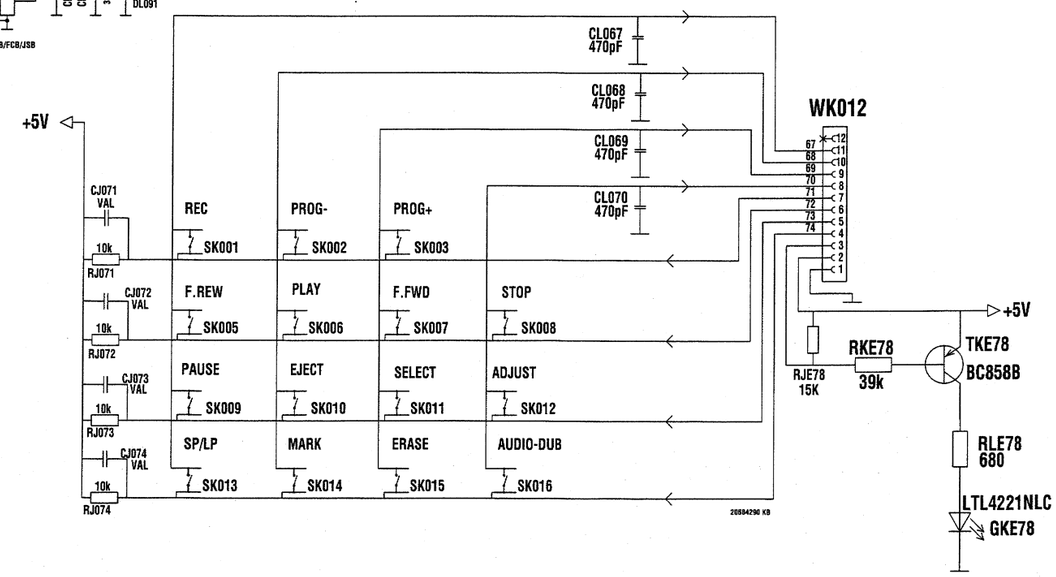
| MAIN | RK251 | JK251 | JK261 | RL281 |
|---|---|---|---|---|
| R5/T5 | - | * | - | 6R8 |
| R6000 | * | - | * | 3R9 |




| PARTS | OPTION | | | | | |
|---|---|---|---|---|---|---|
| | CAMERA PAUSE | W/O CAM. PAUSE | PWM | MIC.DETECT | NON KAR. MODELS ASIA | NON KAR. MODELS EUROPE |
| PK404 | * | - | - | - | - | - |
| CL424 | * | 0R | - | - | - | - |
| CL423 | - | - | - | * | - | - |
| DK425 | - | - | - | * | - | - |
| DJ425 | * | - | - | * | - | - |
| RL025 | * | - | - | * | * | * |
| RK403 | - | - | - | * | - | - |
| RK405 | - | - | - | - (WITHOUT KAR MODE) * (WITH KAR MODE) | - | - |
| RK425 | - | - | * | * | - | - |
| RL425 | - | - | 10K | 10K | 0R | - |
| RJ023 | - | - | - | * | - | - |
| RK023 | - | - | - | * | - | - |
| JJ401 | - | - | - | * | - | - |
| JL402 | - | - | * | - | - | - |
| JL403 | - | - | - | * (WITHOUT KAR MODE) - (WITHKAR MODE) | - | - |

-: DELETE *: INSERT

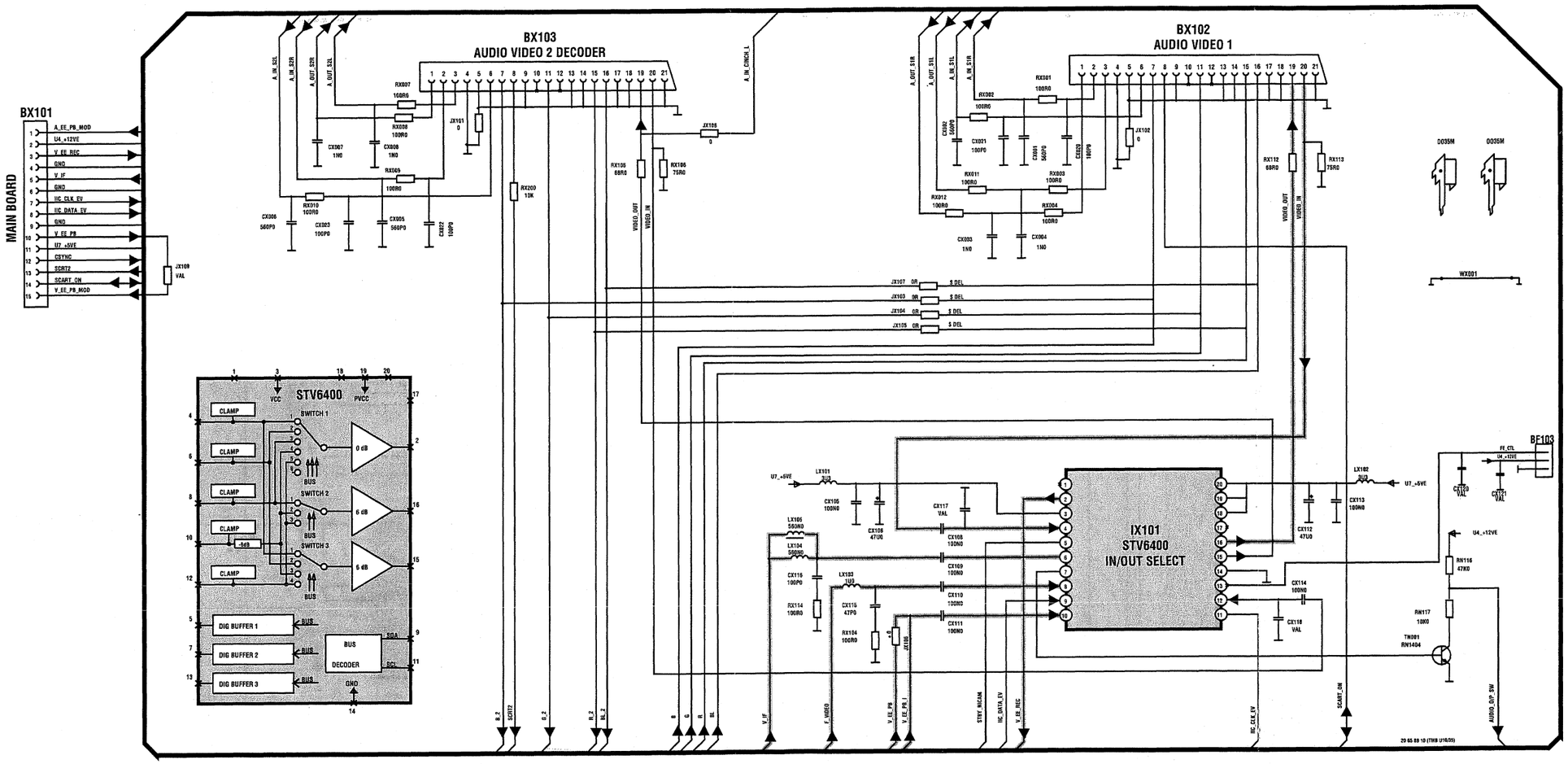


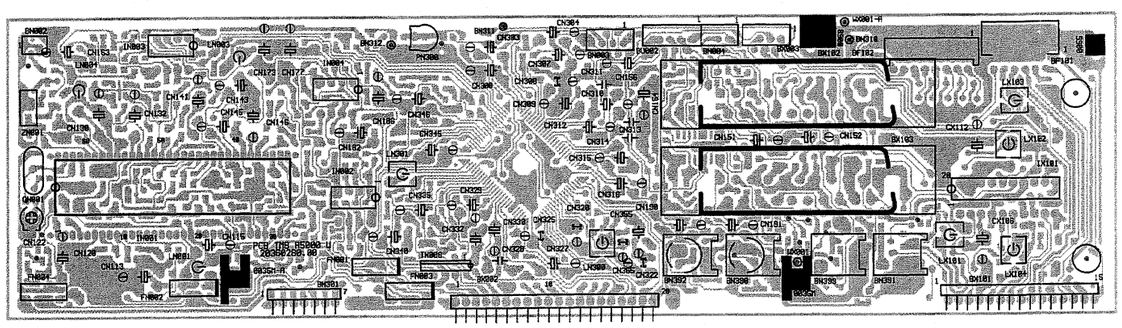
# AUDIO HIFI / SCART CONNECTION BOARD - PLATINE AUDIO HIFI / PRISES SCART - LEITERPLATTE AUDIO HIFI / SCART - PIASTRA AUDIO HIFI / SCART - PLATINA AUDIO HIFI / SCART

SCHEMATIC DIAGRAM (SCART CONNECTION) - SCHEMA DE PRINCIPE (SCART) - SCHALTBILD (SCART) - SCHEMA (SCART) - ESQUEMA (SCART)

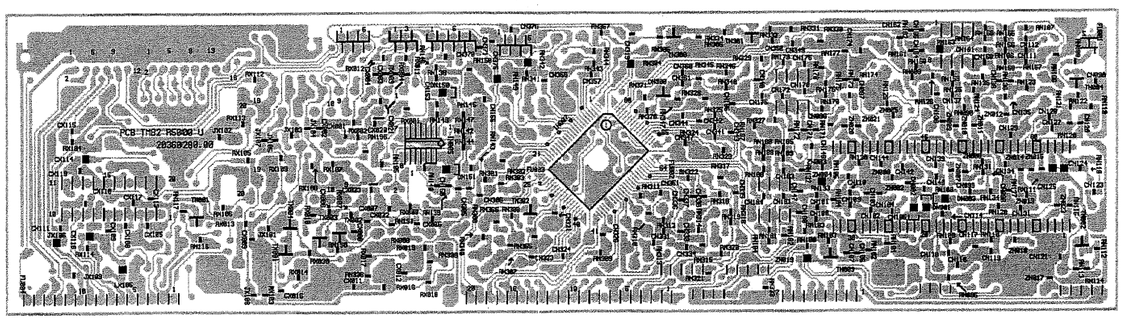
**VPH 6600 N - VPH 6601 - M 9560 HIFI/SA - T 8006 HIFI - V 3450 SV - VR 6081 - VR 6087/F - VR 7081 - VR 8083H - VR 8087**




Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes



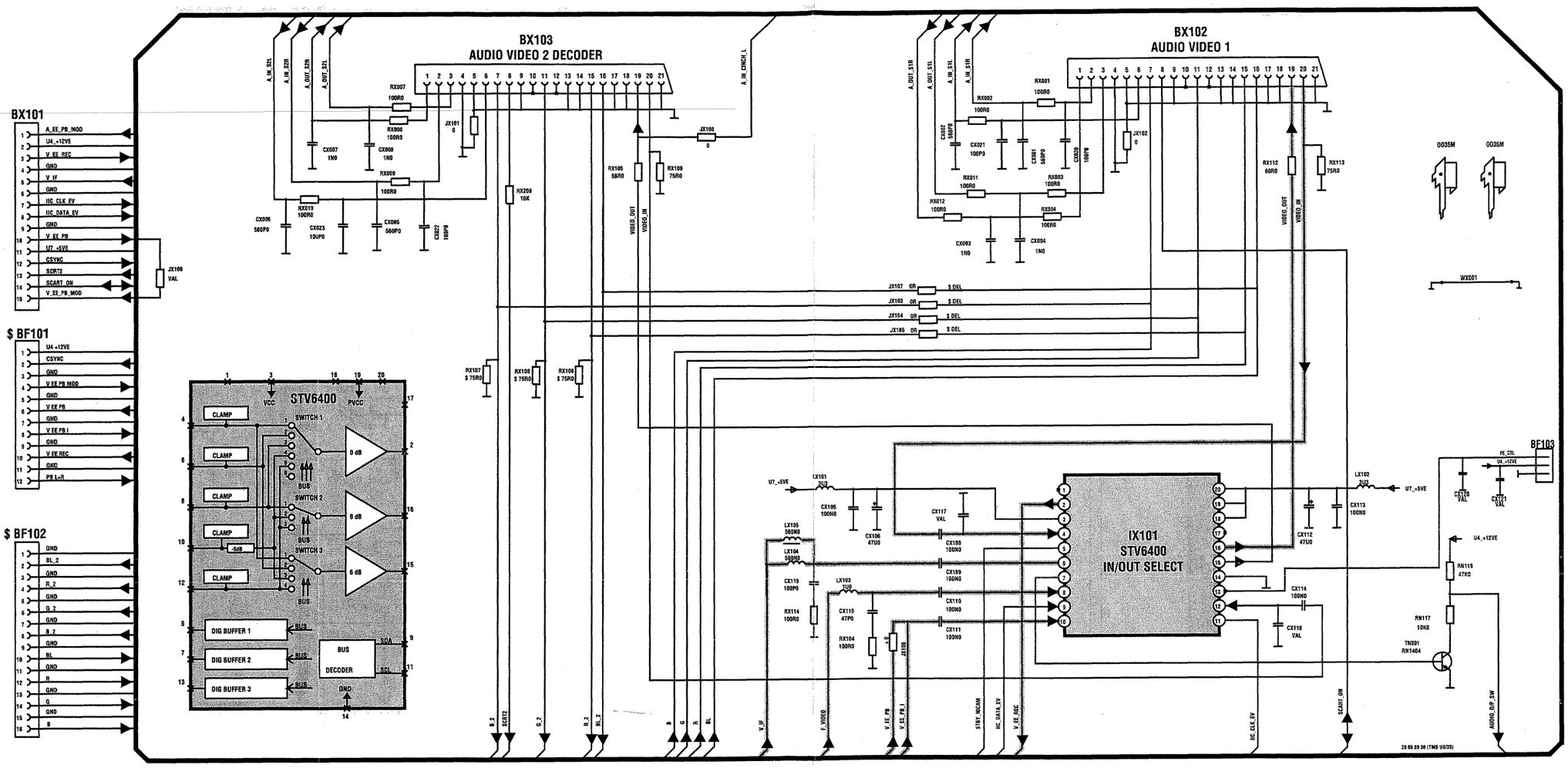
Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



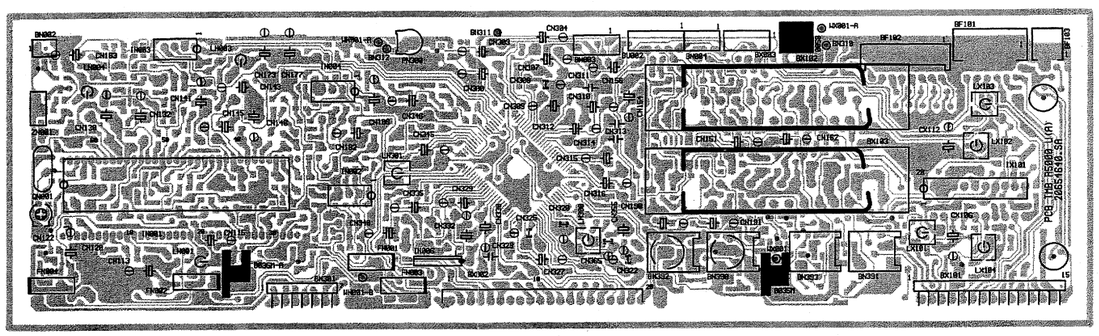
# AUDIO HIFI / SCART CONNECTION BOARD - PLATINE AUDIO HIFI / PRISES SCART - LEITERPLATTE AUDIO HIFI / SCART - PIASTRA AUDIO HIFI / SCART - PLATINA AUDIO HIFI / SCART

SCHEMATIC DIAGRAM (SCART CONNECTION) - SCHEMA DE PRINCIPE (SCART) - SCHALTBILD (SCART) - SCHEMA (SCART) - ESQUEMA (SCART)

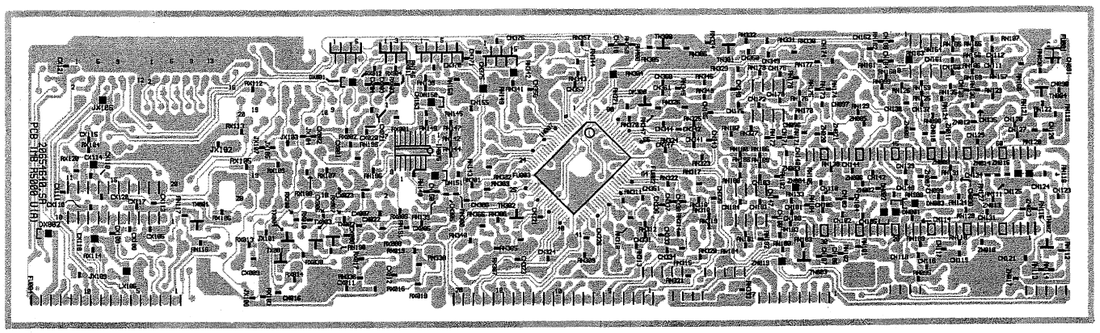
**VPH 6680 - VP 6697SENSAR - VPH 6750 - VPH 6751 - VPH 6780 - VPH 6790 - M 9571 HIFI - M 9680 HIFI**




Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes

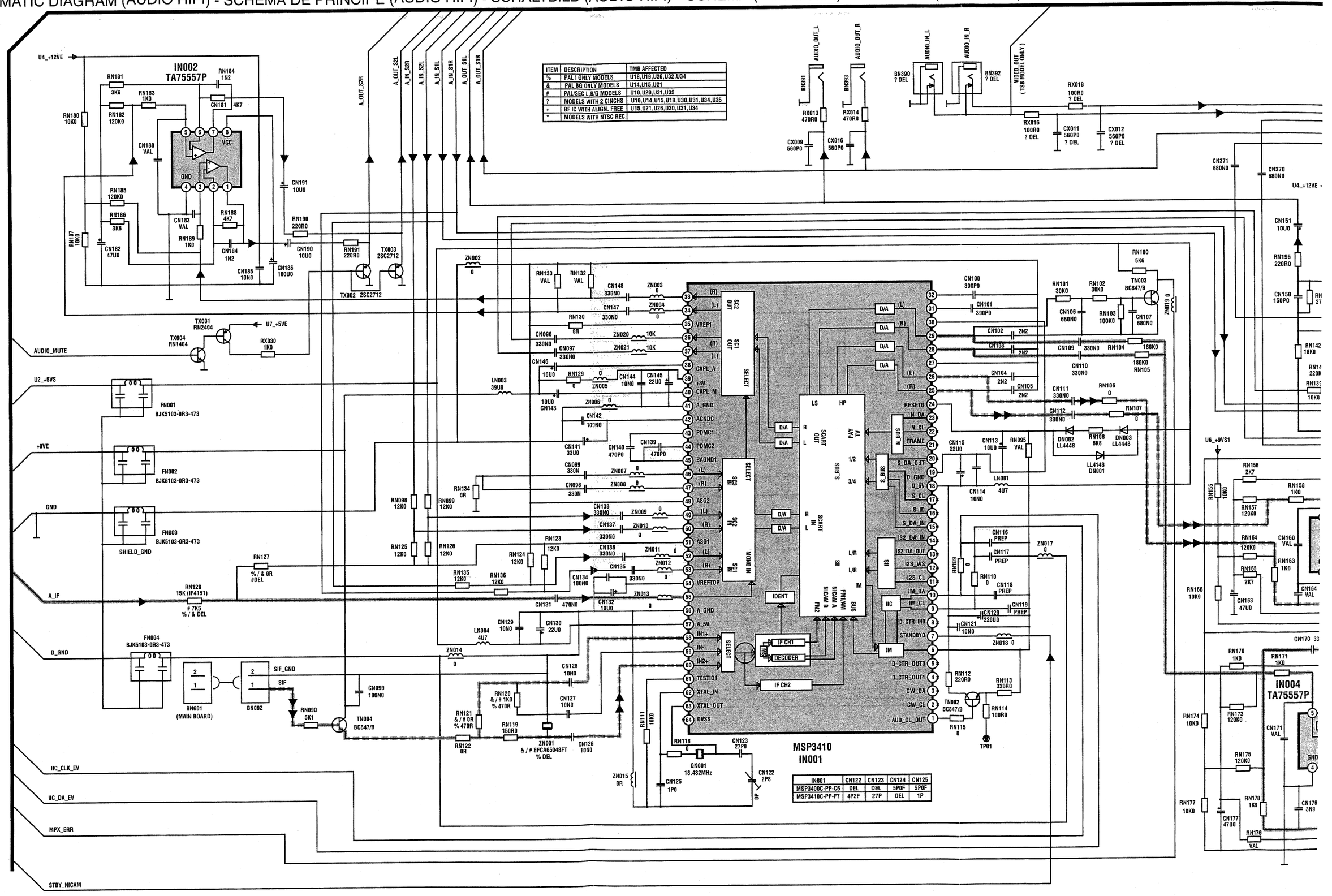


Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre



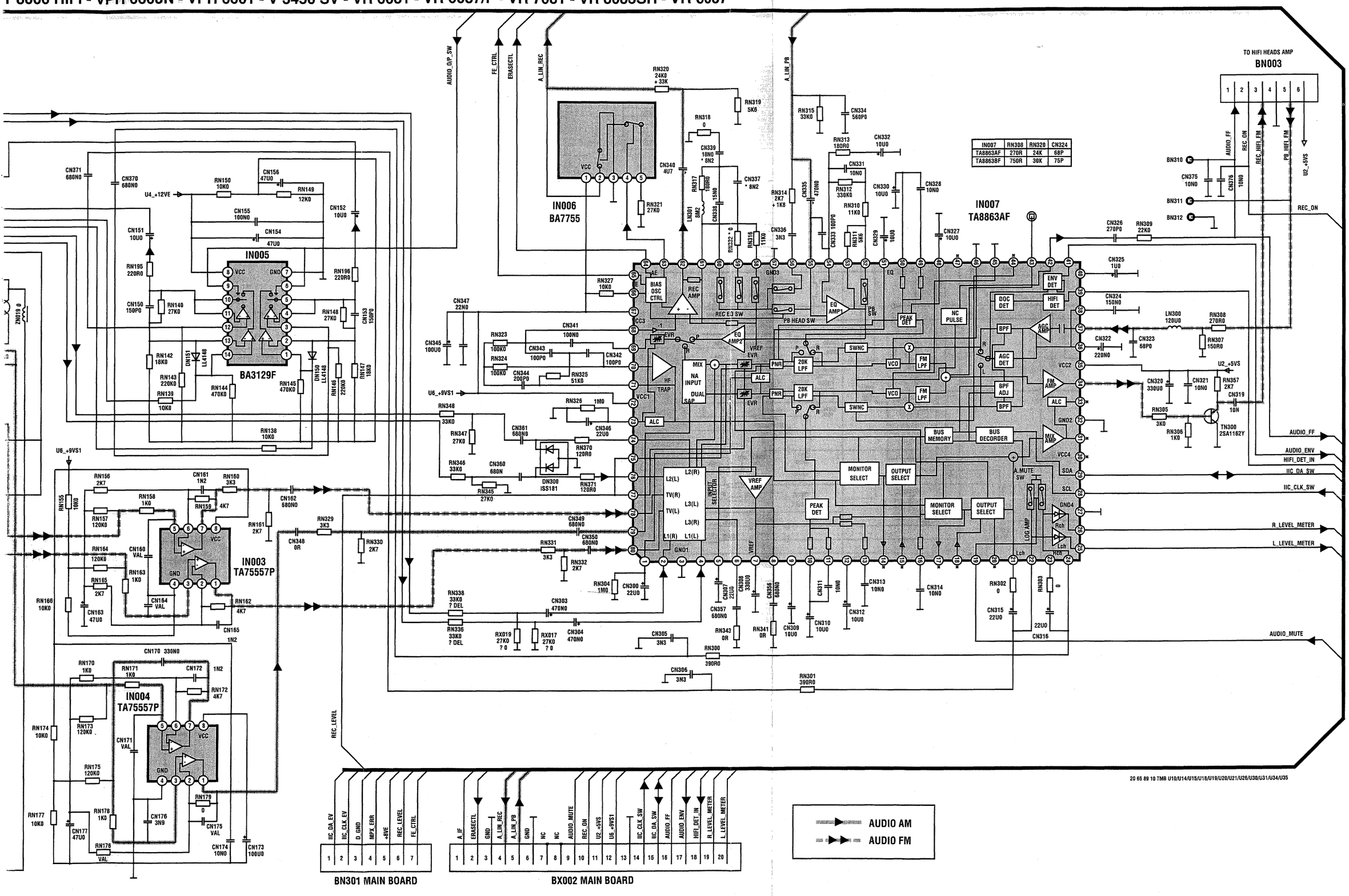
# AUDIO HIFI / SCART CONNECTION BOARD - PLATINE AUDIO HIFI / PRISES SCART - LEITERPLATTE AUDIO HIFI / SCART - PIASTRA AUDIO HIFI / SCART - PLATINA A

SCHEMATIC DIAGRAM (AUDIO HIFI) - SCHEMA DE PRINCIPE (AUDIO HIFI) - SCHALTBILD (AUDIO HIFI) - SCHEMA (AUDIO HIFI) - ESQUEMA (AUDIO HIFI) **M 9560 HIFI/SA - T 8006 HIFI - VPH 6600N**



# / SCART - PLATINA AUDIO HIFI /

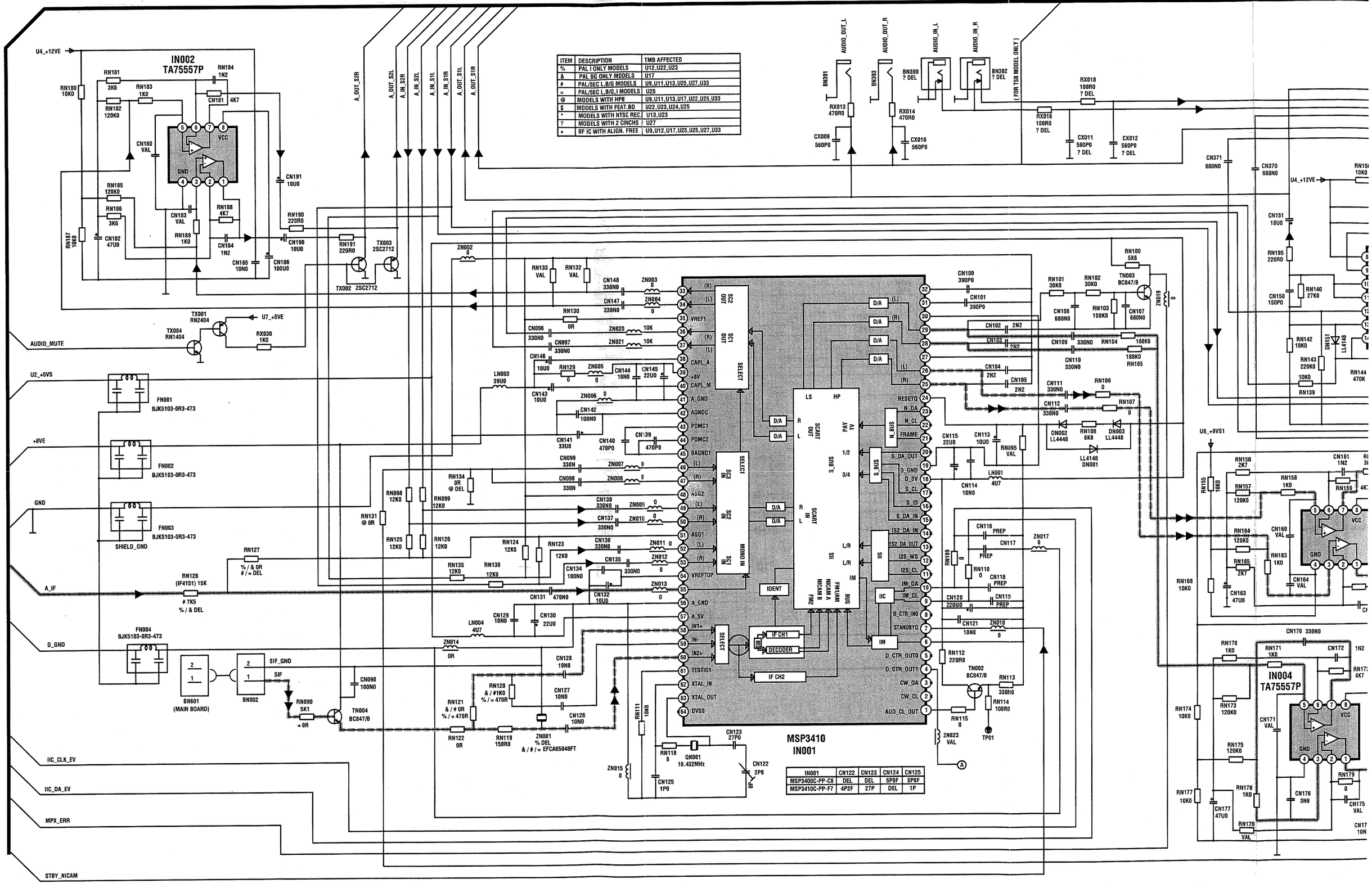
## T 8006 HIFI - VPH 6600N - VPH 6601 - V 3450 SV - VR 6081 - VR 6087/F - VR 7081 - VR 8083SH - VR 8087




20 65 89 10 TMB U10/U14/U15/U18/U19/U20/U21/U26/U30/U31/U34/U35

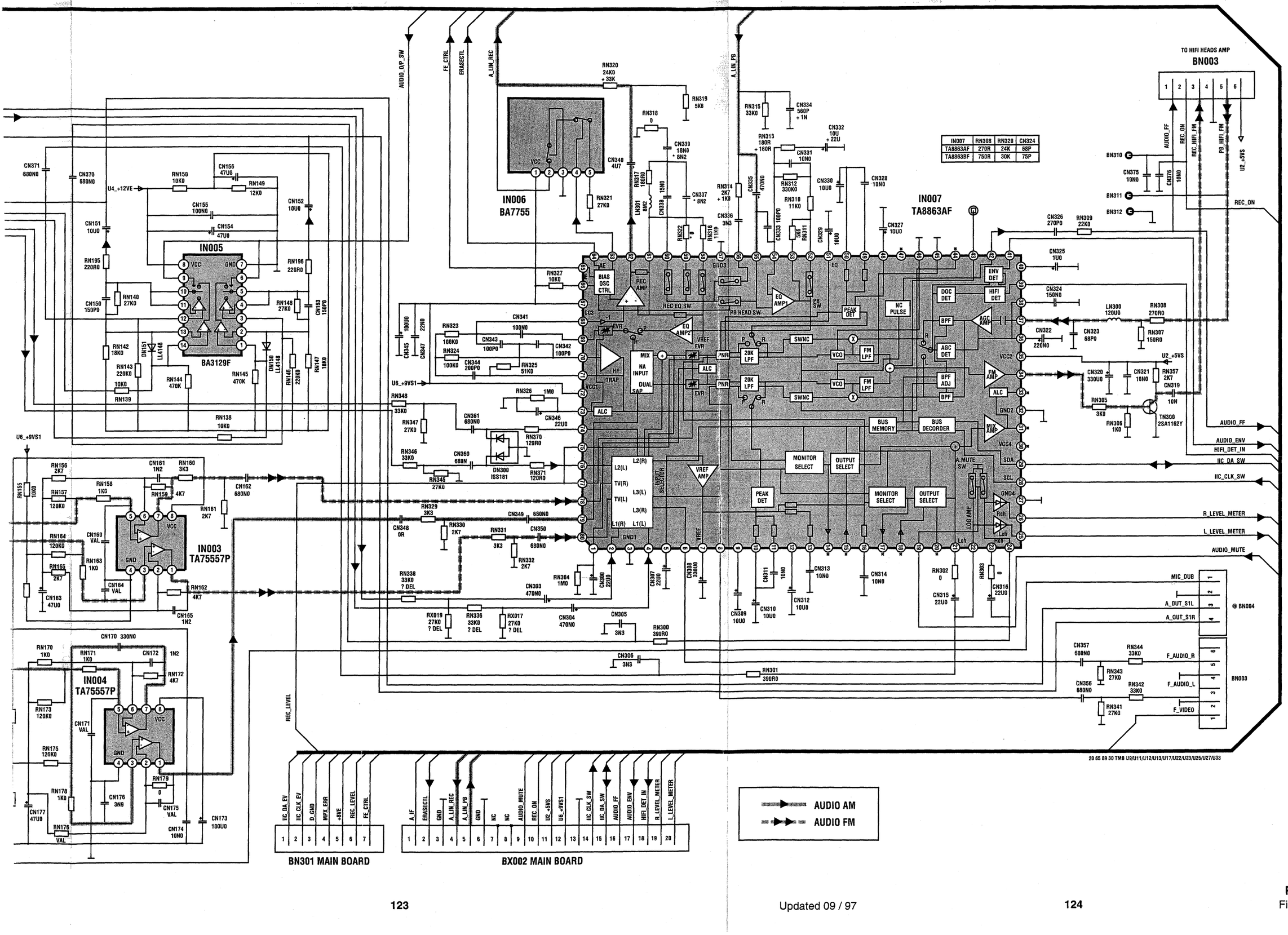
# AUDIO HIFI / SCART CONNECTION BOARD - PLATINE AUDIO HIFI / PRISES SCART - LEITERPLATTE AUDIO HIFI / SCART - PIASTRA AUDIO HIFI / SCART - PLATINA AUDI

SCHEMATIC DIAGRAM (AUDIO HIFI) - SCHEMA DE PRINCIPE (AUDIO HIFI) - SCHALTBILD (AUDIO HIFI) - SCHEMA (AUDIO HIFI) - ESQUEMA (AUDIO HIFI) **VPH 6680 - VPH 6697SENSAR - VPH 6750 - VPI**




| ITEM | DESCRIPTION | TMB AFFECTED |
|---|---|---|
| % | PAL T ONLY MODELS | U12,U22,U23 |
| & | PAL BG ONLY MODELS | U17 |
| # | PAL/SEC L,B/G MODELS | U9,U11,U13,U25,U27,U33 |
| = | PAL/SEC L,B/G,I MODELS | U25 |
| @ | MODELS WITH HP8 | U9,U11,U13,U17,U22,U25,U33 |
| $ | MODELS WITH FEAT.BD | U22,U23,U24,U25 |
| * | MODELS WITH NTSC REC. | U13,U23 |
| ? | MODELS WITH 2 CINCHS | U27 |
| + | BF IC WITH ALIGN. FREE | U9,U12,U17,U23,U25,U27,U33 |

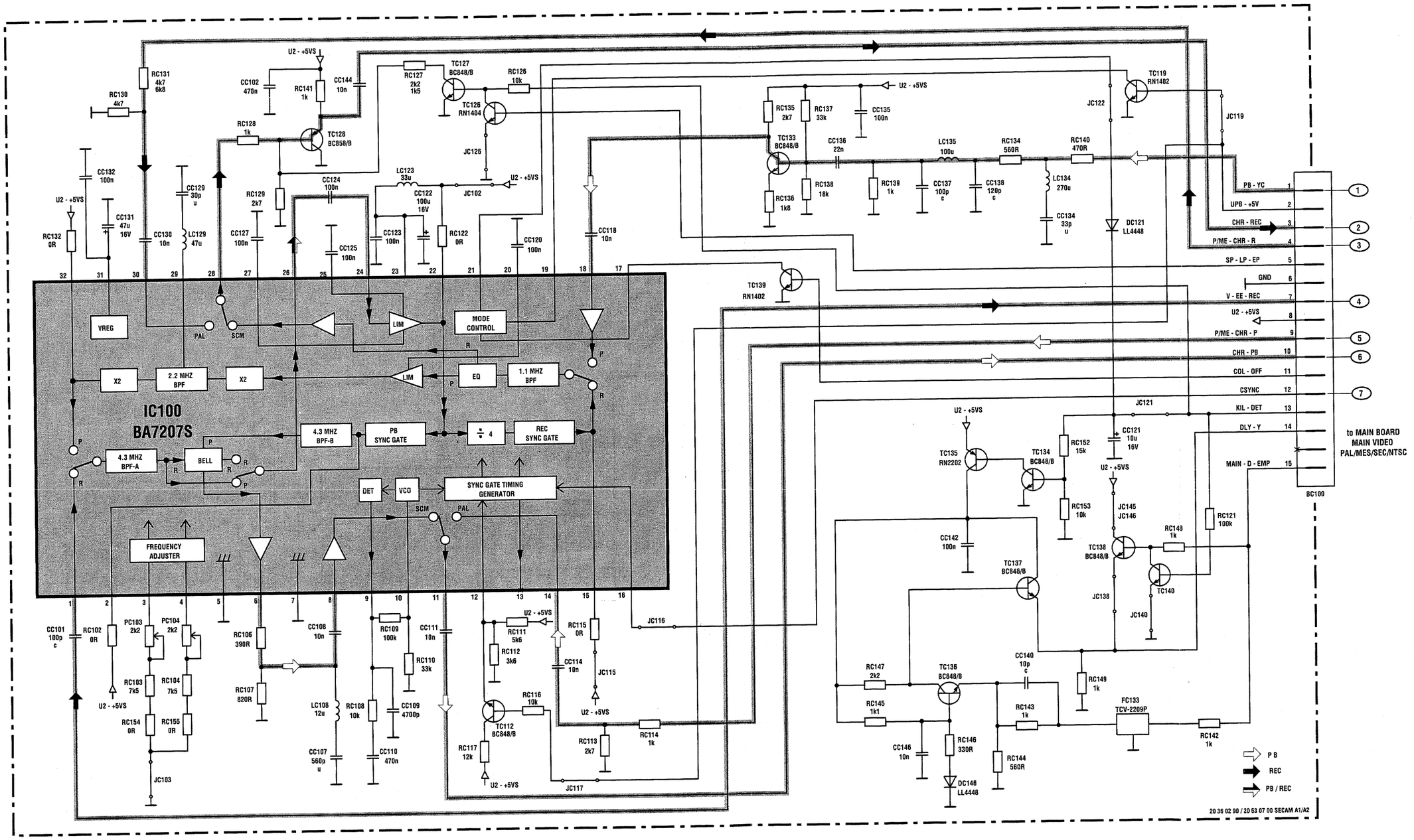
| IN001 | CN122 | CN123 | CN124 | CN125 |
|---|---|---|---|---|
| MSP3400C-PP-C6 | DEL | DEL | 5P0F | 5P0F |
| MSP3410C-PP-F7 | 4P2F | 27P | DEL | 1P |




| IN007 | RN308 | RN320 | CN324 |
|---|---|---|---|
| TA8863AF | 270R | 24K | 68P |
| TA8863BF | 750R | 30K | 75P |

# SECAM SUB BOARD - PLATINE SECAM - SUB MODUL SECAM - PIASTRA SECAM - PLATINA SECAM

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA




IC100 pin1 SECAM PB

V 0.2Vpp

1

IC100 pin4 PAL REC

H 4.2Vpp

3

IC100 pin9 PAL PB

V 0.45Vpp

5

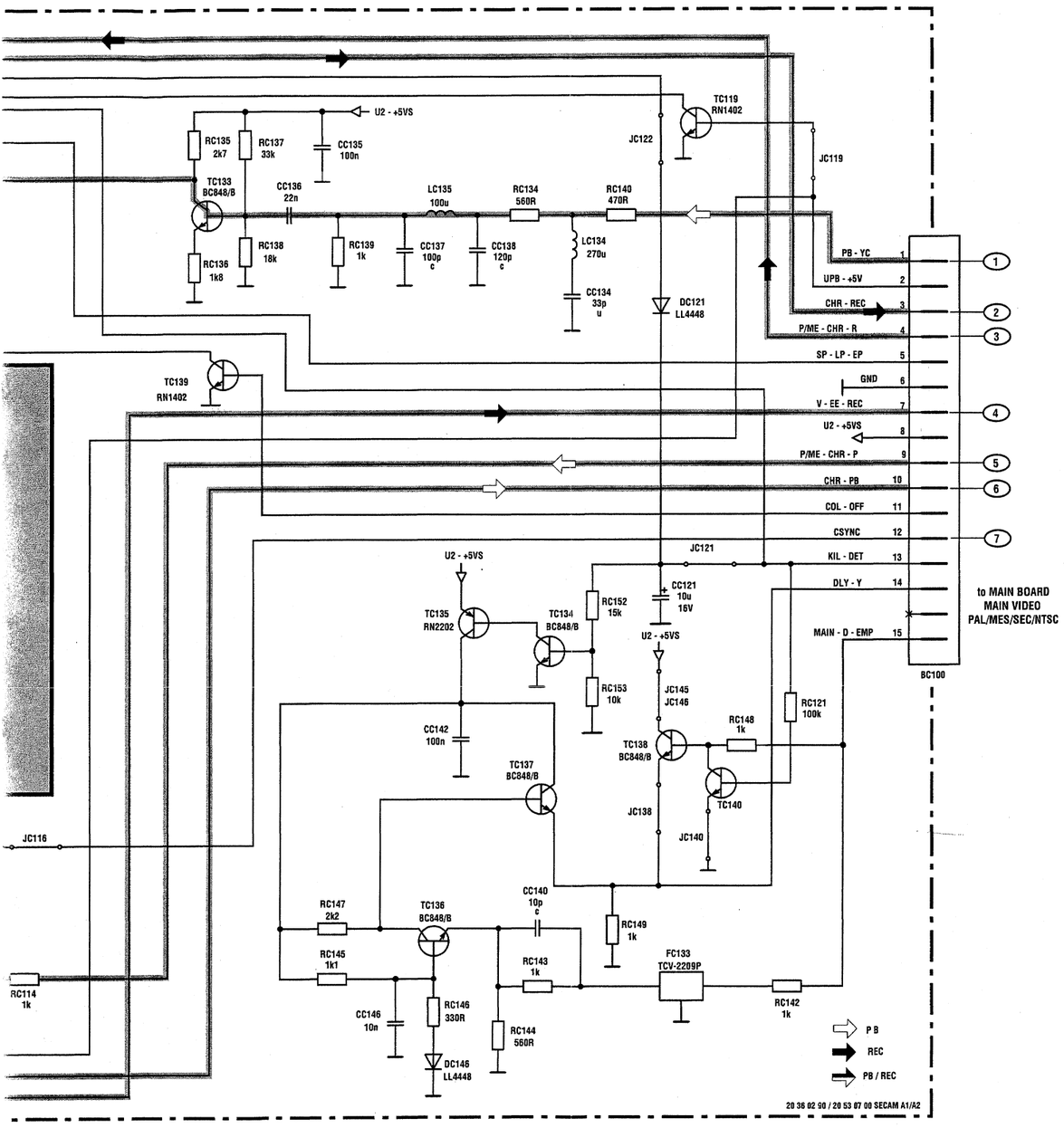
IC100 pin10 PAL PB

V 0.3Vpp

7

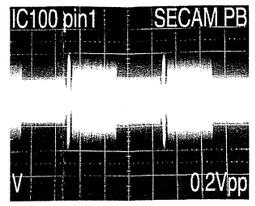
# ASTRA SECAM - PLATINA SECAM

QUEMA

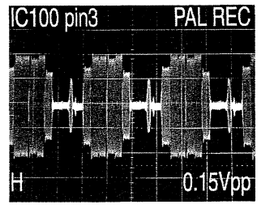





Component side -Côté composants - Bestückungsseite - Lato componenti - Lado componentes




1

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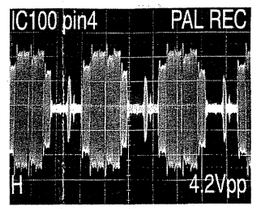
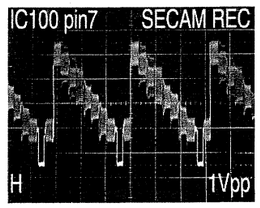
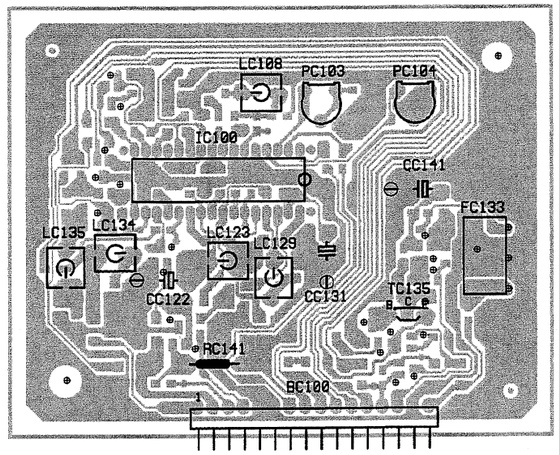


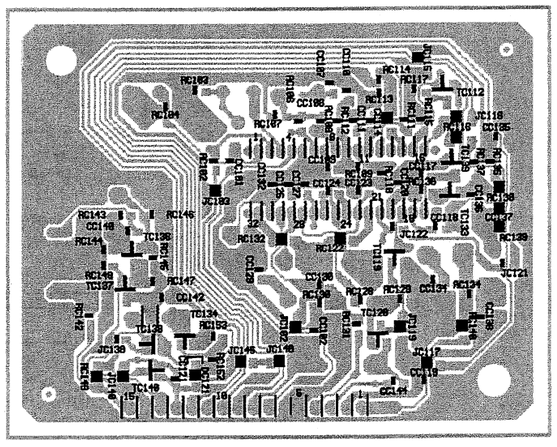

3

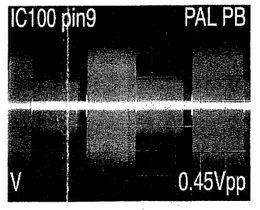



4

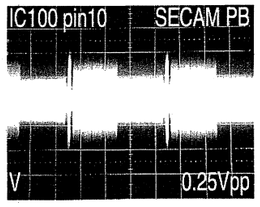



Solder side -Côté cuivre - Lötseite - Lato saldature - Lado del cobre

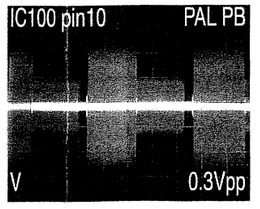




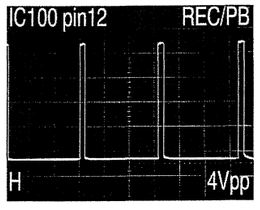

5




6

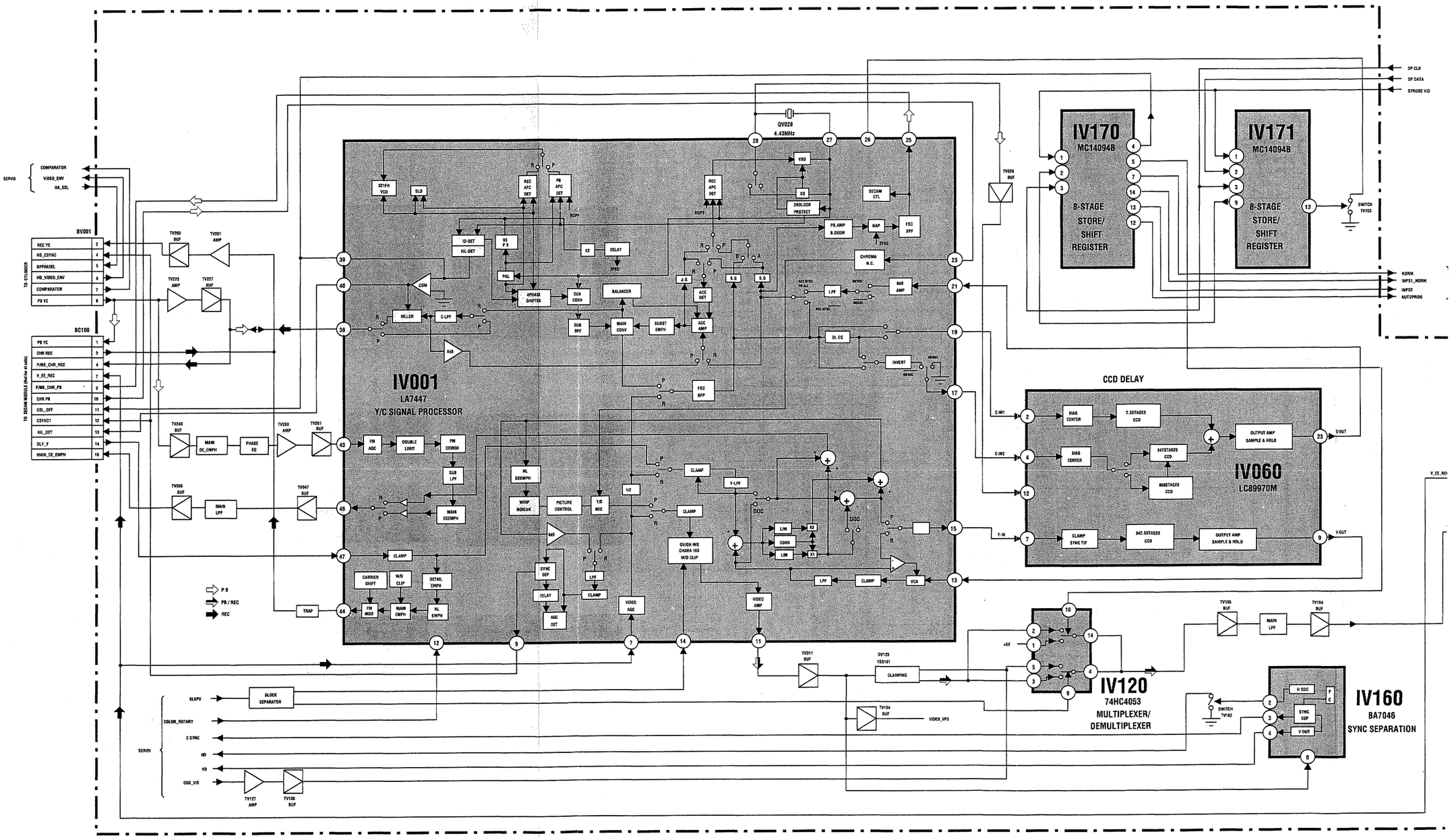



7

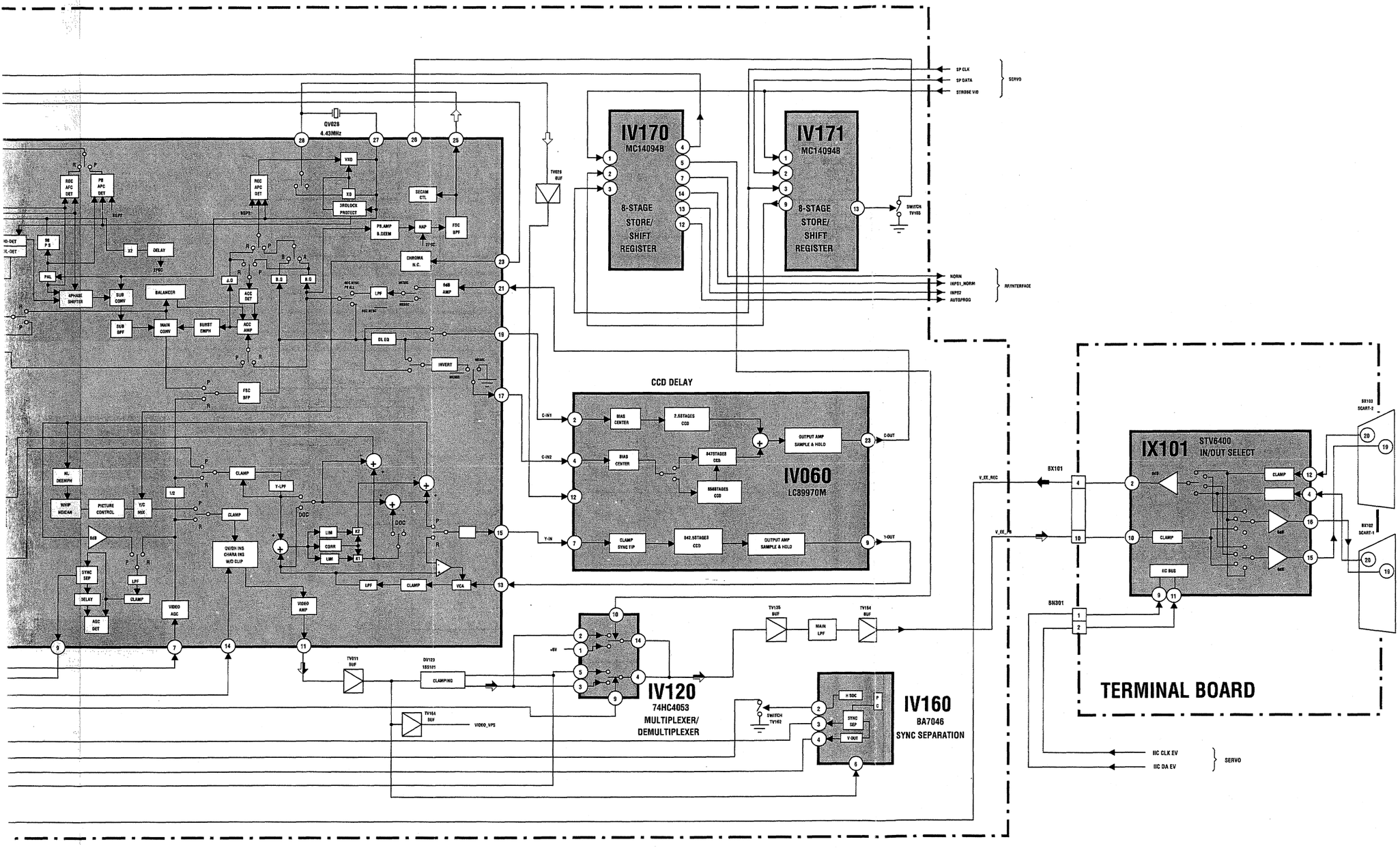



8

BLOCK DIAGRAM VIDEO SIGNAL PROCESSING - SCHEMA SYNOPTIQUE TRAITEMENT VIDEO - BLOCKSCHALTBILD VIDEO SIGNALVERARBEITUNG - SCHEMA A BLOCCHI ELABORAZIONE VIDEO - ESQUEMA DE BLOQUES TRATAMIENTO VIDEO



EMA SYNOPTIQUE TRAITEMENT VIDEO - BLOCKSCHALTBILD VIDEO SIGNALVERARBEITUNG -
MA DE BLOQUES TRATAMIENTO VIDEO



# MEASUREMENTS VIDEO SIGNAL PROCESSING - MESURES TRAITEMENT VIDEO - MESSUNGEN VIDEO SIGNALVERARBEITUNG
# MISURI ELABORAZIONE VIDEO - MEDIDAS TRATAMIENTO VIDEO

| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| DV123 | 1 | 3.1 | 3.1 | 3.1 |
| | 2 | 2.6 | 2.6 | 2.6 |
| | 3 | 2.6 | 2.6 | 2.6 |
| | | | | |
| IV001 | 1 | 2.3 | 4.5 | 2.3 |
| | 2 | 3.1 | 3.1 | 3.1 |
| | 3 | 2.5 | 2.5 | 2.5 |
| | 4 | 1.5 | 2 | 1.5 |
| | 5 | 2.4 | 2.4 | 2.4 |
| | 6 | 2.8 | 2.8 | 4.2 |
| | 7 | 3 | 3 | 3 |
| | 8 | 5 | 5 | 5 |
| | 9 | 0.5 | 0.5 | 0.5 |
| | 10 | 3.1 | 3.1 | 3.1 |
| | 11 | 2 | 2.1 | 2 |
| | 12 | 2.4 | 2.4 | 2.4 |
| | 13 | 2.2 | 2.2 | 2.2 |
| | 14 | 0.2 | 0.2 | 0.2 |
| | 15 | 1.2 | 1.2 | 1.2 |
| | 16 | 2.3 | 2.2 | 2.3 |
| | 17 | 2.5 | 2.5 | 2.5 |
| | 18 | 0 | 0 | 0 |
| | 19 | 2.6 | 2.6 | 2.6 |
| | 20 | 0 | 0 | 0 |
| | 21 | 2.5 | 2.5 | 2.5 |
| | 22 | 0 | 0 | 0 |
| | 23 | 1.9 | 1.9 | 1.9 |
| | 24 | 0 | 0 | 0 |
| | 25 | 0 | 2.5 | 0 |
| | 26 | 0.2 | 0.2 | 0.2 |
| | 27 | 4 | 4 | 4 |
| | 28 | 2.8 | 2.8 | 2.8 |
| | 29 | 2.1 | 2.1 | 2.1 |
| | 30 | 0 | 0 | 0 |
| | 31 | 0 | 0 | 0 |
| | 32 | 0 | 0 | 0 |
| | 33 | 5 | 5 | 5 |
| | 34 | 0.6 | 0.6 | 0.6 |
| | 35 | 0 | 0.3 | 0 |
| | 36 | 2.9 | 2.9 | 2.9 |
| | 37 | 2.9 | 2.9 | 2.9 |
| | 38 | 2.3 | 3.2 | 2.3 |
| | 39 | 3 | 3 | 3 |
| | 40 | 3.7 | 3.7 | 3.7 |
| | 41 | 1.5 | 2 | 1.6 |
| | 42 | 0 | 0 | 0 |
| | 43 | 2.3 | 3.2 | 2.3 |
| | 44 | 3 | 3.6 | 3 |
| | 45 | 4.2 | 4.2 | 4.2 |
| | 46 | 2.3 | 3.2 | 2.3 |
| | 47 | 3 | 3.2 | 3 |
| | 48 | 2.3 | 4.5 | 2.3 |

| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| IV060 | 1 | 0 | 0 | 0 |
| | 2 | 2.3 | 2.3 | 2.3 |
| | 3 | 5.1 | 5.1 | 5.1 |
| | 4 | 2.3 | 2.3 | 2.3 |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | 2.3 | 2.3 | 2.3 |
| | 8 | 0 | 0 | 0 |
| | 9 | 1.2 | 1.2 | 1.2 |
| | 10 | 0 | 0 | 0 |
| | 11 | 2.3 | 2.3 | 2.3 |
| | 12 | 1.2 | 1.2 | 1.2 |
| | 13 | 0 | 0 | 0 |
| | 14 | 2 | 2 | 2 |
| | 15 | 2 | 2 | 2 |
| | 16 | 5 | 5 | 5 |
| | 17 | 0 | 0 | 0 |
| | 18 | 5 | 5 | 5 |
| | 19 | 8.5 | 8.5 | 8.5 |
| | 20 | 4.3 | 4.3 | 4.3 |
| | 21 | 0 | 0 | 0 |
| | 22 | 0 | 0 | 0 |
| | 23 | 1.3 | 1.3 | 1.3 |
| | 24 | 0 | 0 | 0 |
| | | | | |
| IV120 | 1 | 5.1 | 5.1 | 5.1 |
| | 2 | 3.1 | 3.1 | 3.1 |
| | 3 | 3.1 | 2.9 | 3.1 |
| | 4 | 3.1 | 2.9 | 3.1 |
| | 5 | 2.7 | 2.7 | 2.7 |
| | 6 | 0 | 0 | 0 |
| | 7 | 0 | 0 | 0 |
| | 8 | 0 | 0 | 0 |
| | 9 | 5.1 | 5.1 | 5.1 |
| | 10 | 0 | 0 | 0 |
| | 11 | 0 | 0 | 0 |
| | 12 | 3.1 | 2.9 | 3.1 |
| | 13 | 0.1 | 0.1 | 0.1 |
| | 14 | 3.1 | 2.9 | 3.1 |
| | 15 | 3.1 | 2.9 | 3.1 |
| | 16 | 5.1 | 5.1 | 5.1 |
| | | | | |
| IV160 | 1 | 2.1 | 2.1 | 2.1 |
| | 2 | 4.7 | 4.7 | 4.7 |
| | 3 | 0.8 | 0.8 | 0.8 |
| | 4 | 5 | 5 | 5 |
| | 5 | 0 | 0 | 0 |
| | 6 | 2.4 | 2.2 | 2.4 |
| | 7 | 5.1 | 5.1 | 5.1 |
| | 8 | 2.2 | 2.2 | 2.2 |
| | | | | |

| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| | | | | |
| IV170 | 1 | 4.8 | 4.8 | 4.8 |
| | 2 | 0 | 0 | 0 |
| | 3 | 4.8 | 4.8 | 4.8 |
| | 4 | 0 | 0 | 0 |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 0 | 0 |
| | 7 | 0 | 0 | 0 |
| | 8 | 0 | 0 | 0 |
| | 9 | 0 | 0 | 0 |
| | 10 | 0 | 0 | 0 |
| | 11 | 0 | 0 | 0 |
| | 12 | 0 | 0 | 0 |
| | 13 | 0 | 0 | 0 |
| | 14 | 4.9 | 4.9 | 4.9 |
| | 15 | 5.1 | 5.1 | 5.1 |
| | 16 | 5.1 | 5.1 | 5.1 |
| | | | | |
| IV171 | 1 | 4.8 | 4.8 | 4.8 |
| | 2 | 0 | 0 | 0 |
| | 3 | 4.8 | 4.8 | 4.8 |
| | 4 | 0 | 0 | 0 |
| | 5 | 0 | 0 | 0 |
| | 6 | 0 | 5 | 0 |
| | 7 | 0 | 0 | 0 |
| IV171 | 8 | 0 | 0 | 0 |
| | 9 | 0 | 0 | 0 |
| | 10 | 0 | 0 | 0 |
| | 11 | 0 | 0 | 0 |
| | 12 | 0 | 0 | 0 |
| | 13 | 4.9 | 4.9 | 4.9 |
| | 14 | 0 | 0 | 0 |
| | 15 | 5.1 | 5.1 | 5.1 |
| | 16 | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV002 | E | 0 | 0 | 0 |
| | B | 0 | 5 | 0 |
| | C | 0 | 0 | 0 |
| | | | | |
| TV003 | E | 1.6 | 2.5 | 1.6 |
| | B | 0 | 3.2 | 0 |
| | C | 2.5 | 2.5 | 2.5 |
| | | | | |
| TV006 | E | 2.7 | 2.7 | 4.2 |
| | B | 0 | 0 | 4.8 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV011 | E | 2.7 | 2.7 | 2.7 |
| | B | 2 | 2 | 2 |
| | C | 0 | 0 | 0 |
| | | | | |

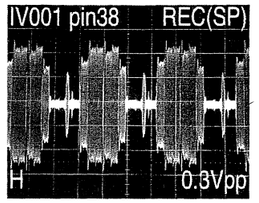
| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TV028 | E | 2.2 | 2 | 2.2 |
| | B | 2.8 | 2.7 | 2.8 |
| | C | 5 | 5 | 5 |
| | | | | |
| TV047 | E | 3 | 3.8 | 3 |
| | B | 2.3 | 3.2 | 2.3 |
| | C | 0 | 0 | 0 |
| | | | | |
| TV055 | E | 2.3 | 3.2 | 2.3 |
| | B | 3 | 3.8 | 3 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV103 | E | 0 | 0 | 0 |
| | B | 4.9 | 4.9 | 4.9 |
| | C | 0 | 0 | 0 |
| | | | | |
| TV126 | E | 0 | 0 | 0 |
| | B | 2.3 | 2.3 | 2.3 |
| | C | -0.1 | 0 | 0 |
| | | | | |
| TV127 | E | 4.3 | 4.3 | 4.3 |
| | B | 3.7 | 3.7 | 3.7 |
| | C | 2.4 | 2.4 | 2.4 |
| | | | | |
| TV130 | E | 1.7 | 1.7 | 1.7 |
| | B | 2.4 | 2.4 | 2.4 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV135 | E | 2.4 | 2.1 | 2.4 |
| | B | 3 | 2.7 | 3 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV140 | E | 1.6 | 1.6 | 1.6 |
| | B | 1 | 1 | 1 |
| | C | 5 | 5 | 5 |
| | | | | |
| TV141 | E | 1.6 | 1.6 | 1.6 |
| | B | 2.3 | 2.3 | 2.3 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV143 | E | 2.4 | 2.4 | 2.4 |
| | B | 1.8 | 1.8 | 1.8 |
| | C | 0 | 0 | 0 |
| | | | | |
| TV145 | E | 3.3 | 3.3 | 3.3 |
| | B | 2.4 | 2.4 | 2.4 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV147 | E | 3.3 | 3.3 | 3.3 |
| | B | 4 | 4 | 4 |
| | C | 3.4 | 3.4 | 3.4 |

| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TV149 | E | 3.4 | 3.4 | 3.4 |
| | B | 4 | 4 | 4 |
| | C | 0.2 | 0.2 | 0.2 |
| | | | | |
| TV154 | E | 1.8 | 1.6 | 1.8 |
| | B | 2.4 | 2.2 | 2.4 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV164 | E | 0.2 | 0.2 | 0.2 |
| | B | 2.7 | 2.7 | 2.7 |
| | C | 0.2 | 0.2 | 0.2 |
| | | | | |
| TV170 | E | 0 | 0 | 0 |
| | B | 0 | 4.7 | 0 |
| | C | 5.1 | 0 | 5.1 |
| | | | | |
| TV171 | E | 5.1 | 5.1 | 5.1 |
| | B | 5.1 | 4.3 | 5.1 |
| | C | 0 | 5 | 0 |
| | | | | |
| TV186 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0.3 | 0.3 | 0.3 |
| | | | | |
| TV187 | E | 0 | 0 | 0 |
| | B | 0.3 | 0.3 | 0.3 |
| | C | 0 | 1.2 | 1.2 |
| | | | | |
| TV188 | E | 1.9 | 1.9 | 4.1 |
| | B | 0 | 0 | 4.8 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV200 | E | 2.7 | 4.4 | 2.7 |
| | B | 3.3 | 5 | 3.3 |
| | C | 5.1 | 5.1 | 5.1 |
| | | | | |
| TV201 | E | 1.2 | 4.3 | 1.2 |
| | B | 1.8 | 1.8 | 1.8 |
| | C | 3.3 | 5.1 | 3.3 |
| | | | | |
| TV223 | E | 0 | 1.1 | 0 |
| | B | 0 | 1.7 | 0 |
| | C | 0 | 3.6 | 0 |
| | | | | |
| TV225 | E | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |
| | | | | |
| TV227 | E | 0 | 3 | 0 |
| | B | 0 | 3.6 | 0 |
| | C | 0 | 5 | 0 |

| VIDEO | | MODE | | |
|---|---|---|---|---|
| LOC | PIN | EE | PLAY | REC. |
| TV243 | E | 0 | 3.6 | 0 |
| | B | 0 | 2.9 | 0 |
| | C | 0 | 1.8 | 0 |
| | | | | |
| TV248 | E | 0 | 1.2 | 0 |
| | B | 0 | 1.8 | 0 |
| | C | 0 | 3.7 | 0 |
| | | | | |
| TV250 | E | 0 | 0.6 | 0 |
| | B | 0 | 1.2 | 0 |
| | C | 0 | 4.6 | 0 |
| | | | | |
| TV251 | E | 0 | 3.9 | 0 |
| | B | 0 | 4.5 | 0 |
| | C | 0 | 5 | 0 |

## NOTES

MEASUREMENTS VIDEO SIGNAL PROCESSING - MESURES TRAITEMENT VIDEO - MESSUNGEN VIDEO SIGNALVERARBEITUNG
MISURI ELABORAZIONE VIDEO - MEDIDAS TRATAMIENTO VIDEO

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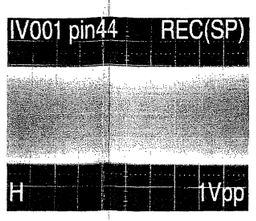


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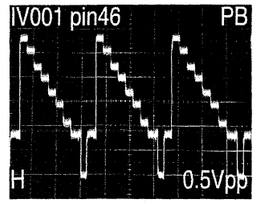


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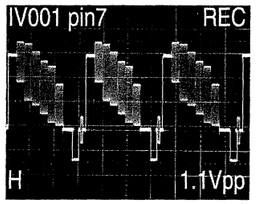


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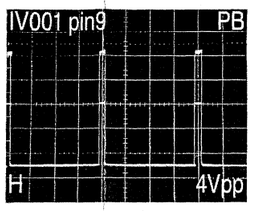


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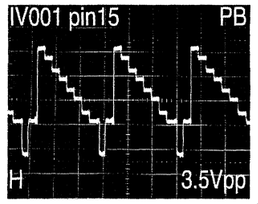


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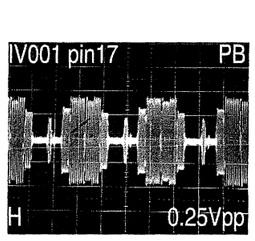


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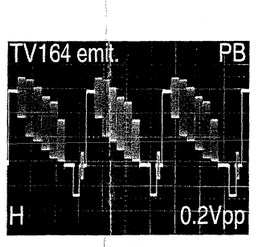


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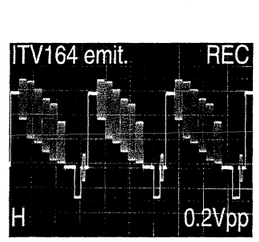
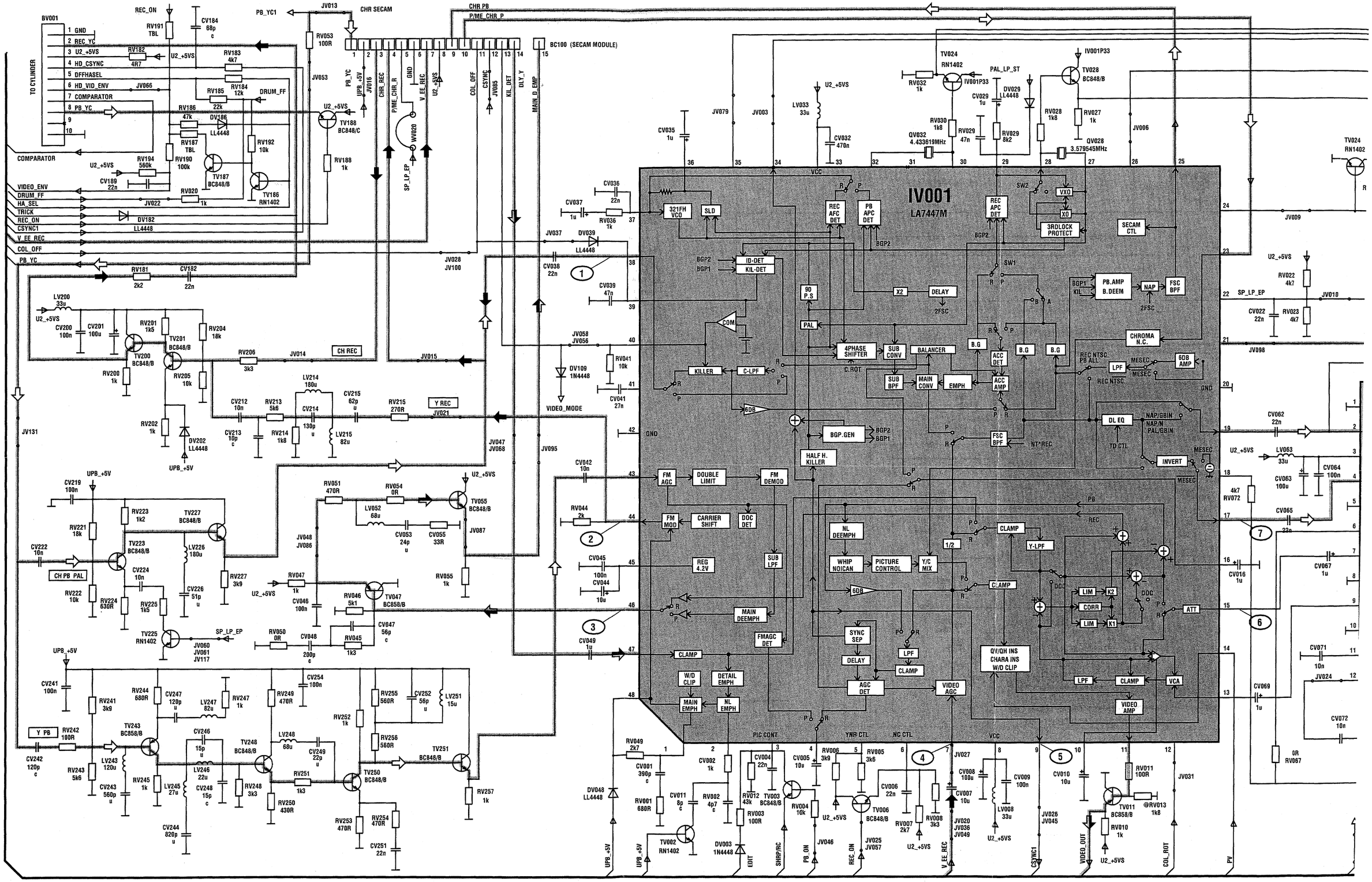



9

NOTES

# VIDEO SIGNAL PROCESSING - TRAITEMENT LUMINANCE / CHROMINANCE - VIDEO SIGNALVERARBEITUNG - ELABORAZIONE VIDEO - TRATAMIENTO VIDEO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA ( **VPH 6790** )



IV100 LA7356M
IV060 LC89970M
IV160 BA7046
IV170 MC14094B 8 stage store shift register
IV171 MC14094B 8 stage store shift register
*IV120 74HC4053
CHARGED COUPLED DEVICE DELAY LINE

| | HIFI | MONO |
|---|---|---|
| RV191 | 150k | X |
| RV187 | 120k | 82k |

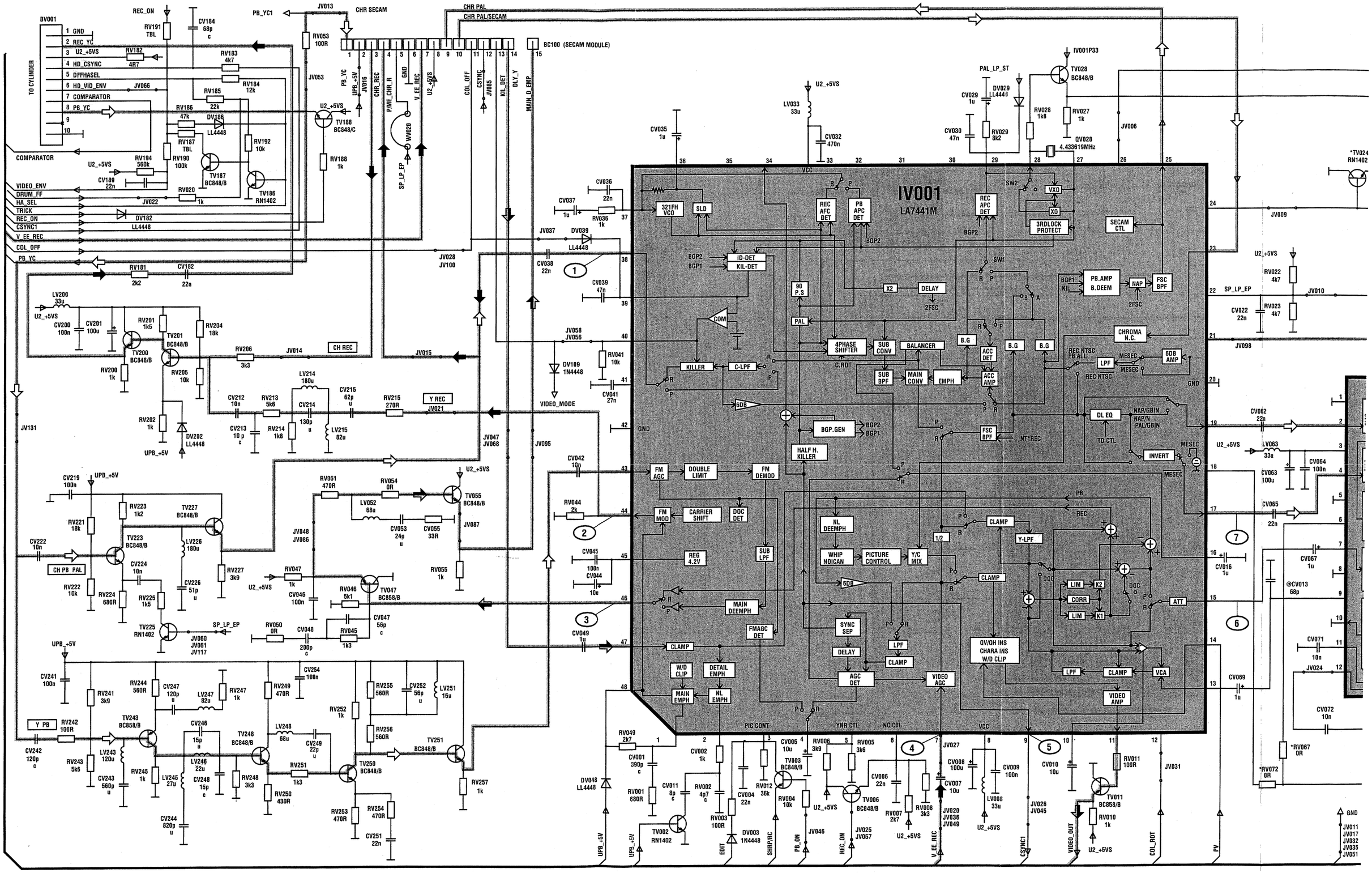
* : NOT USE IN ICON MODEL
# : USE IN ICON MODEL
@ : NOT USE IN MODEL WITH UNIT 5100

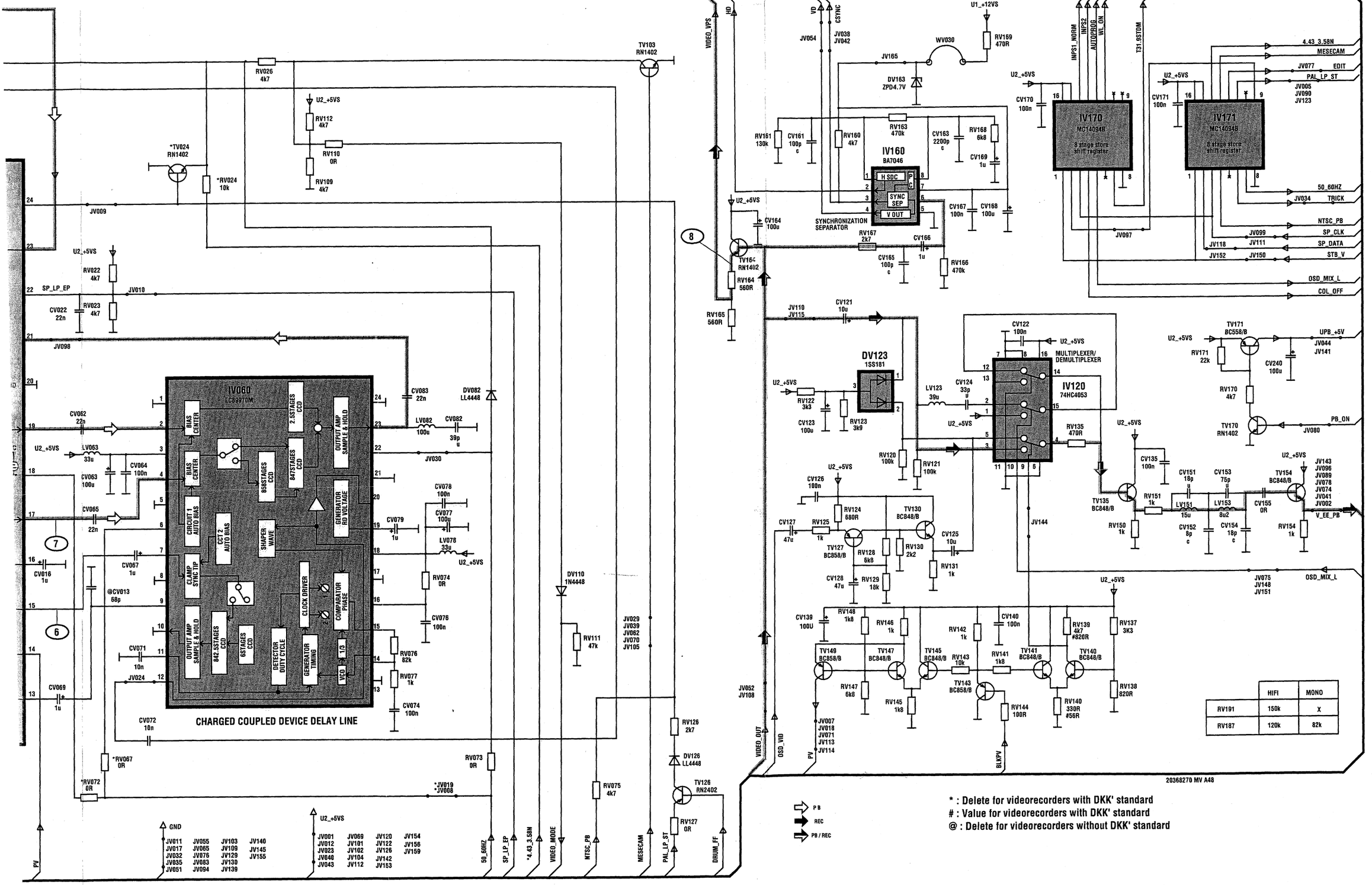
20 63 72 10 MV A53

P B
REC
PB / REC

# VIDEO SIGNAL PROCESSING - TRAITEMENT LUMINANCE / CHROMINANCE - VIDEO SIGNALVERARBEITUNG - ELABORAZIONE VIDEO - TRATAMIENTO VIDEO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA **( M9571 HIFI - VR 6087/F - VR 8087 - VPH 6750 )**





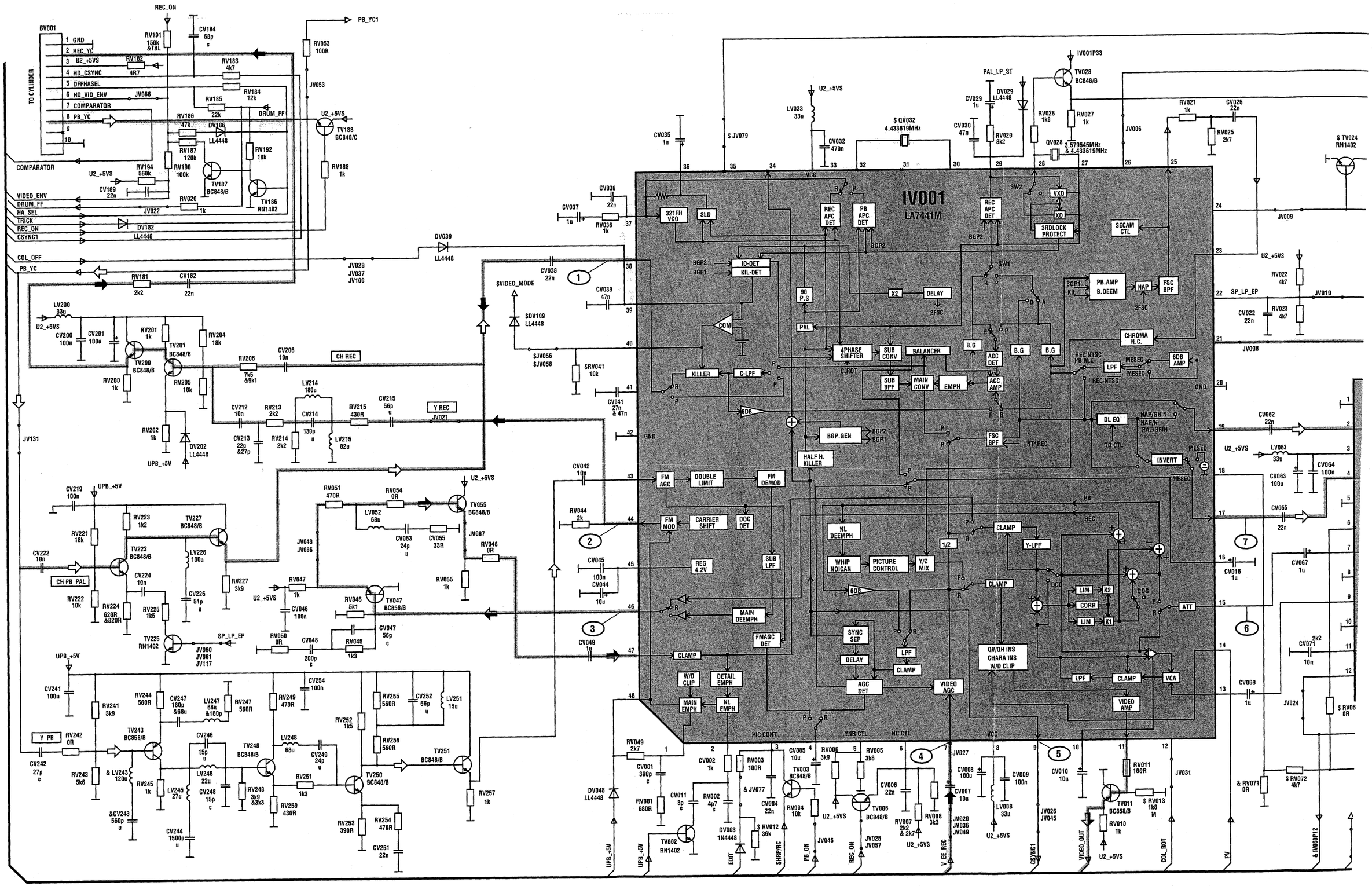

| | HIFI | MONO |
|---|---|---|
| RV191 | 150k | X |
| RV187 | 120k | 82k |

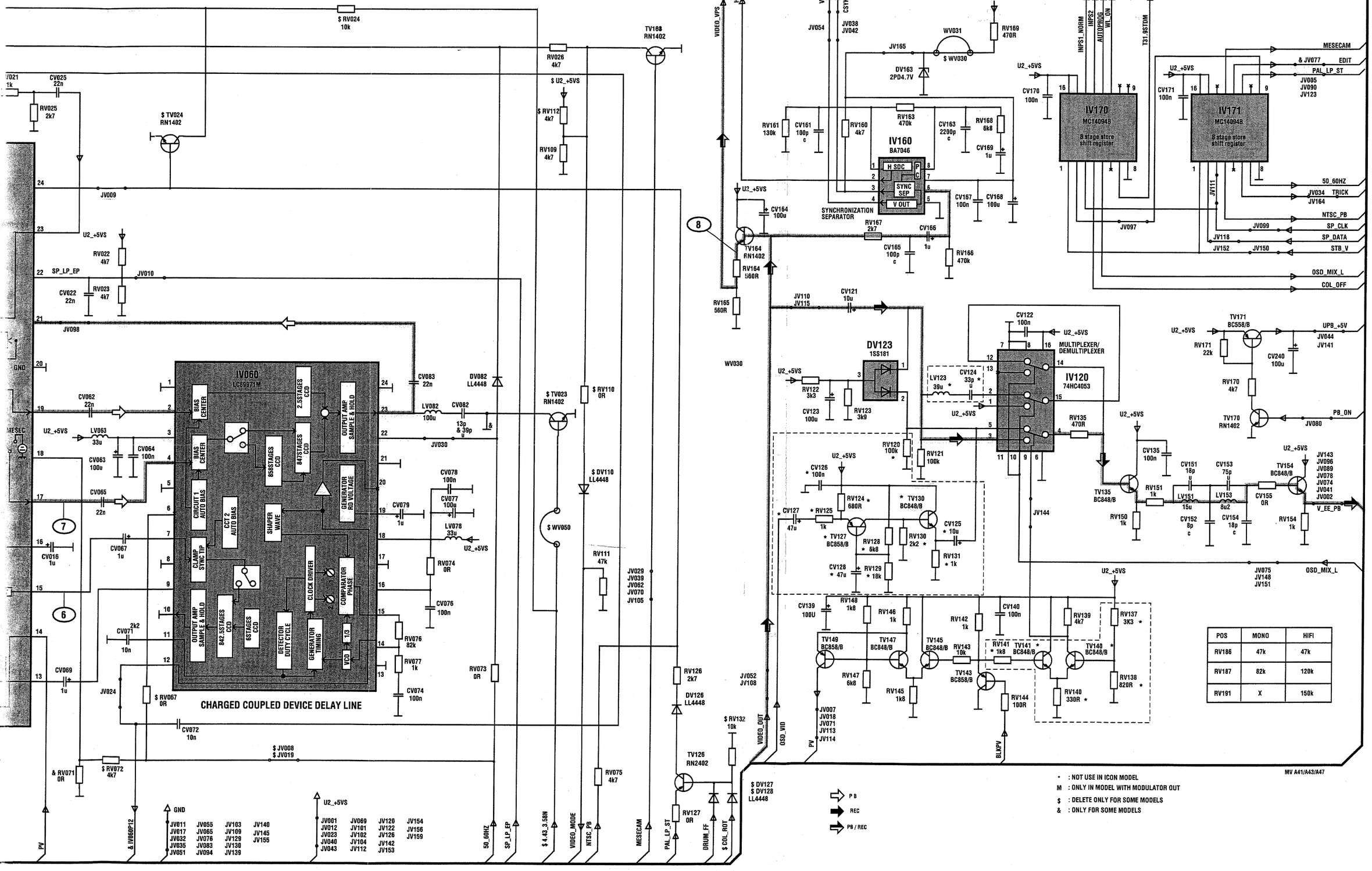
20368270 MV A48

* : Delete for videorecorders with DKK' standard
\# : Value for videorecorders with DKK' standard
@ : Delete for videorecorders without DKK' standard

# VIDEO SIGNAL PROCESSING - TRAITEMENT LUMINANCE / CHROMINANCE - VIDEO SIGNALVERARBEITUNG - ELABORAZIONE VIDEO - TRATAMIENTO VIDEO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA ( **VR 6081 - VR 7081 - VR 8083SH -V 3450 SV - VPH 66001 - VPH 6697 SENSAR - VPH 6751 - M 9560 HIFI/SA - T 8(**





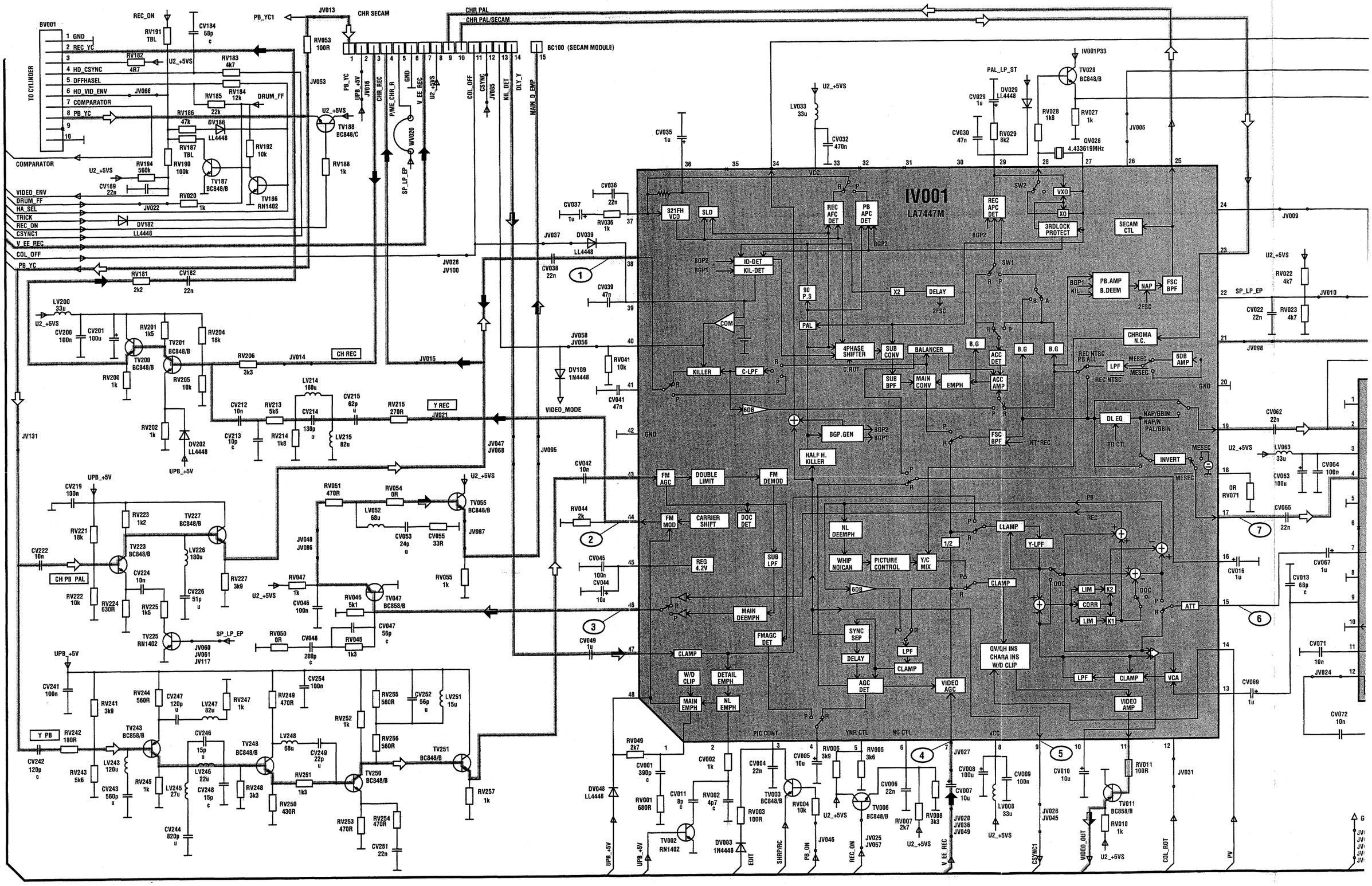

| POS | MONO | HIFI |
|---|---|---|
| RV186 | 47k | 47k |
| RV187 | 82k | 120k |
| RV191 | X | 150k |

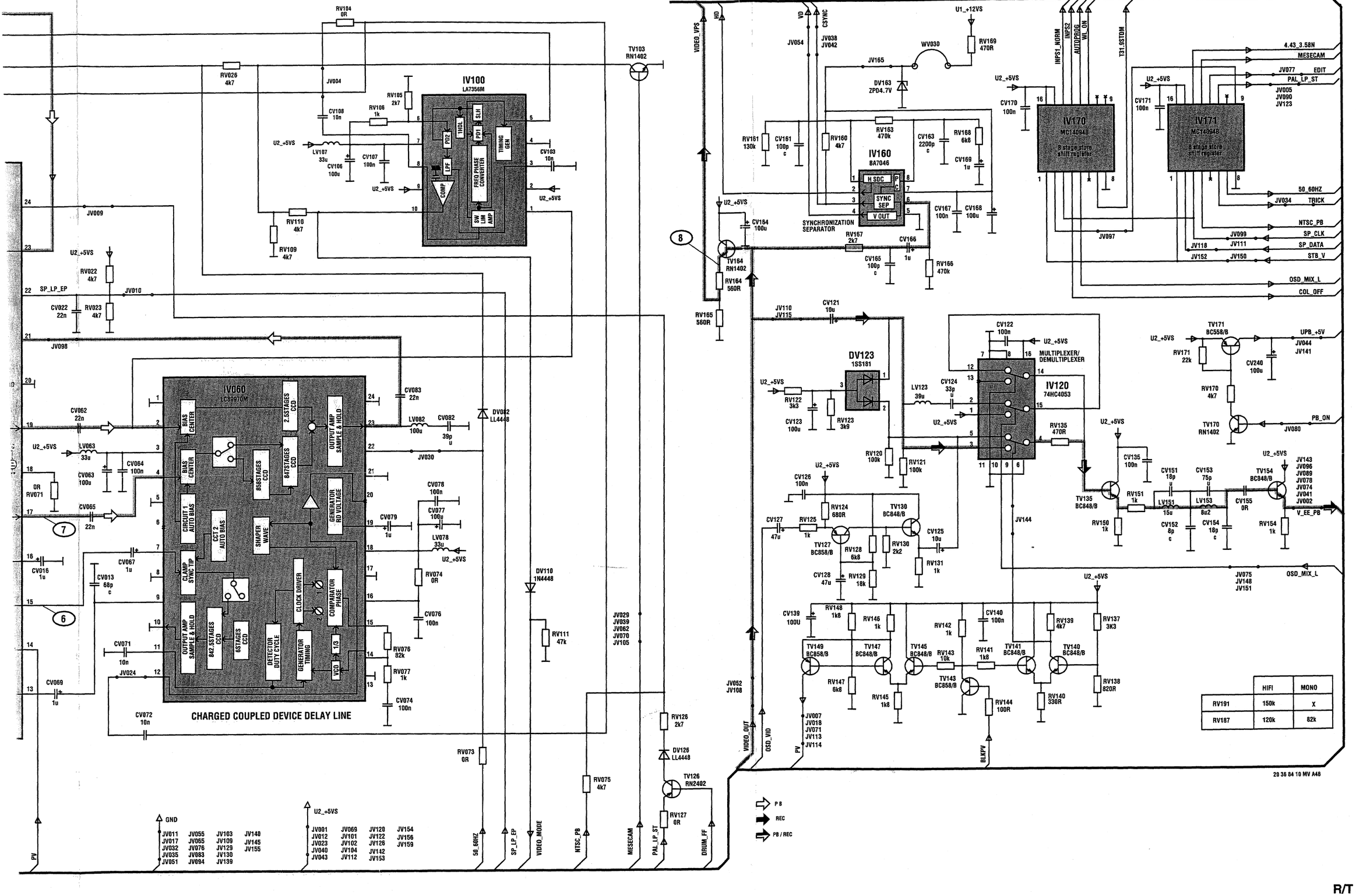
* : NOT USE IN ICON MODEL
M : ONLY IN MODEL WITH MODULATOR OUT
$ : DELETE ONLY FOR SOME MODELS
& : ONLY FOR SOME MODELS

MV A41/A43/A47

# VIDEO SIGNAL PROCESSING - TRAITEMENT LUMINANCE / CHROMINANCE - VIDEO SIGNALVERARBEITUNG - ELABORAZIONE VIDEO - TRATAMIENTO VIDEO

SCHEMATIC DIAGRAM - SCHEMA DE PRINCIPE - SCHALTBILD - SCHEMA - ESQUEMA ( **VPH 6600N - VPH 6680 - VPH 6780 - M 9680 HIFI** )






| | HIFI | MONO |
|---|---|---|
| RV191 | 150k | X |
| RV187 | 120k | 82k |

20 36 84 10 MV A46

V12784

# THOMSON CONSUMER ELECTRONICS

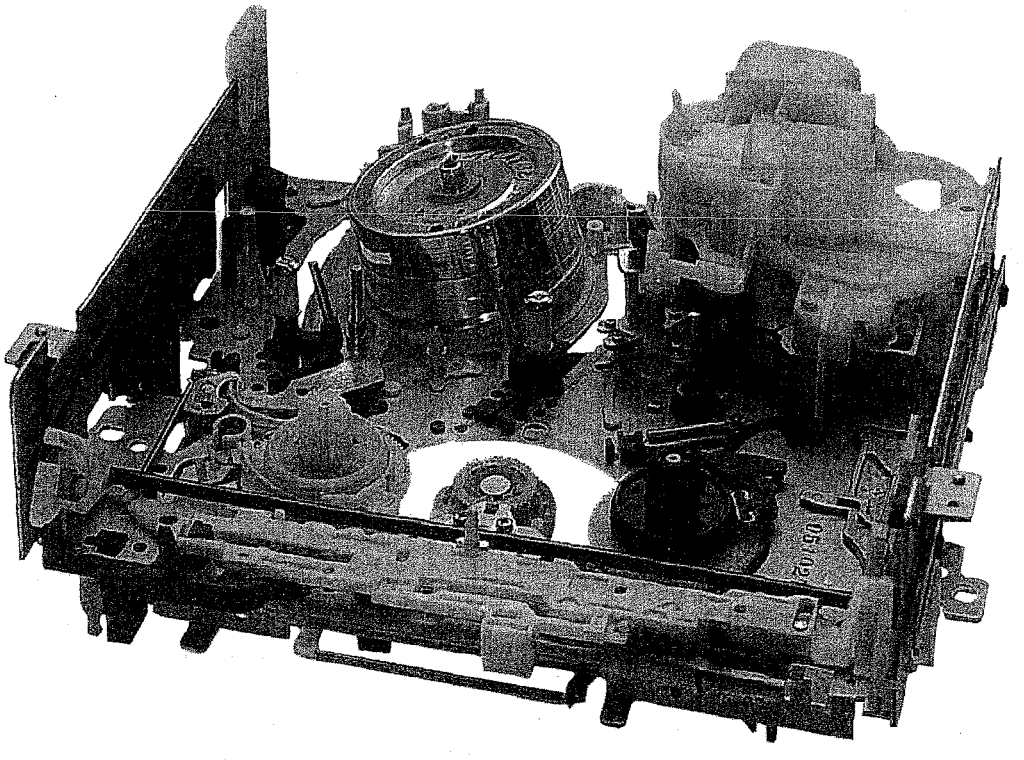
NORDMENDE THOMSON TECHNOLOGY | SABA | TELEFUNKEN | THOMSON

VIDEO

## SERVICE MANUAL
## DOCUMENTATION TECHNIQUE
## TECHNISCHE DOKUMENTATION
## DOCUMENTAZIONE TECNICA
## DOCUMENTACION TECNICA

# R4000

Mechanical adjustment - Disassembly/Assembly
Instruction de réglages mécaniques - Démontage/Remontage
Mechanische Einstellungen - Demontage/Montage
Istruzioni per la manutenzione meccanica - Smontaggio/Rimontaggio
Ajustes mecanicos - Desmontar/Volver a montar



**WARNING :** *Before servicing this chassis read the safety recommendations.*
**ATTENTION :** *Avant toute intervention sur ce châssis, lire les recommandations de sécurité.*
**ACHTUNG :** *Vor jedem Eingriff auf diesem Chassis, die Sicherheitsvorschriften lesen.*
**ATTENZIONE :** *Prima di intervenire sullo chassis, leggere le norme di sicurezza.*
**IMPORTANTE :** *Antes de cualquier intervención, leer las recomendaciones de seguridad.*

**Code : 102.859.90 - 1094**

Geräteliste auf Seite 2 / List of sets on page 2

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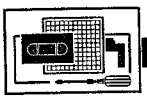
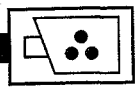
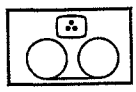
Deutschland

| *MODELLE* | *MARKE* | *KOEPFE* | *TYPE* | *KATEGORIE* |
|---|---|---|---|---|
| V 1140 IMC | NORDMENDE | 2 | PAL(MESECAM) | 1 |
| V 1242 SV | | 2 (LP) | PAL(MESECAM) | 1 |
| V 1440 IMC | | 4 (LP) | PAL(MESECAM) | 1 |
| V 1444 SV | | 4 (LP) | PAL(MESECAM) | 1 |
| V 3445 SV | | 4 + 2 (LP) | PAL(MESECAM) | 2 |
| V 4404 SENSAR | | 4 + 2 (LP) | PAL / NTSC | 2 |
| V 4445 SV | | 4 + 2 + 1 (LP) | PAL / NTSC | 2 |
| VR 5020 | SABA | 2 | PAL(MESECAM) | 1 |
| VR 5021 | | 2 | | 1 |
| VR 5025 | | 2 | | 1 |
| VR 5035 | | 3 | | 1 |
| VR 5040 | | 4 | | 1 |
| VR 5045 | | 4 | | 1 |
| M 9415 | TELEFUNKEN | 2 | PAL(MESECAM) | 1 |
| M 9420 | | 2 | PAL(MESECAM) | 1 |
| M 9423 | | 2 | PAL(MESECAM) | 1 |
| M 9425 | | 2 (LP) | PAL(MESECAM) | 1 |
| M 9430 | | 3 | PAL(MESECAM) | 1 |
| M 9443 | | 4 | PAL(MESECAM)/SECAM | 1 |
| M 9445 | | 4 (LP) | PAL(MESECAM) | 1 |
| M 9460 | | 4 + 2 (LP) | PAL(MESECAM) | 2 |
| M 9470 | | 4 + 2 (LP) | PAL(MESECAM)/SECAM | 2 |

Export

| *MODELLE* | *MARKE* | *KOEPFE* | *TYPE* | *KATEGORIE* |
|---|---|---|---|---|
| V 1140 IMC | NORDMENDE | 2 | PAL(MESECAM) | 1 |
| V 1242 SV | | 2 (LP) | PAL(MESECAM) | 1 |
| V 1440 IMC | | 4 (LP) | PAL(MESECAM) | 1 |
| V 1444 SV | | 4 (LP) | PAL(MESECAM) | 1 |
| V 3445 SV | | 4 + 2 (LP) | PAL(MESECAM) | 2 |
| V 4445 SV | | 4 + 2 + 1 (LP) | PAL / NTSC | 2 |
| VR 5020 | SABA | 2 | PAL(MESECAM) | 1 |
| VR 5025 | | 2 | PAL(MESECAM) | 1 |
| VR 5035 | | 3 | PAL(MESECAM) | 1 |
| VR 5040 | | 4 | PAL(MESECAM) | 1 |
| M 9420 | TELEFUNKEN | 2 | PAL(MESECAM) | 1 |
| M 9425 | | 2 (LP) | PAL(MESECAM) | 1 |
| M 9430 | | 3 | PAL(MESECAM) | 1 |
| M 9443 | | 4 | PAL(MESECAM)/SECAM | 1 |
| M 9445 | | 4 (LP) | PAL(MESECAM) | 1 |
| M 9460 | | 4 + 2 (LP) | PAL(MESECAM) | 2 |
| M 9470 | | 4 + 2 (LP) | PAL(MESECAM)/SECAM | 2 |
| V 1400 | THOMSON | 2 | PAL(MESECAM)/SECAM | 1 |
| VP 2400 | | 2 | PAL(MESECAM)/SECAM | 1 |
| VP 4480 | | 4 (LP) | PAL(MESECAM)/SECAM | 1 |
| VPH 6400 | | 4 + 2 | PAL(MESECAM)/SECAM | 2 |
| VPH 6480 | | 4 + 2 (LP) | PAL(MESECAM)/SECAM | 2 |
| VPH 6490 | | 4 + 2 | PAL / SECAM / NTSC | 2 |

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## I - ALLGEMEINES

Dieses Laufwerk entspricht dem VHS-Standard und wird mit 3 Motoren betrieben:
Kopftrommel-, Capstan- (Direktantrieb) und Funktionssteuermotor (zum Antrieb der Wickelteller und der Funktionssteuernocke). Das neue Laufwerk zeichnet sich durch einen Kopftrommelmotor aus, dessen Stator auf der Hauptplatine integriert ist.

## I - GENERAL

This mechanism complies fully with the VHS standard. It comprises of three motors; drum and capstan, which are both direct drive and a function control driving the function cam mechanism. This mechanism can be identified by the construction of the drum motor, the stator winding are attached to the main board.

## II - BESCHREIBUNG DES LAUFWERKS

Liste der wichtigsten Teile:

**Abb. 1:**
1 - Andruckrolle
2 - Bandführung
6 - Ton- / Kontrollkopf
10 - Trommelantriebseinheit
11 - Löschkopf
13 - Antistatikbürste

**Abb. 2:**
15 - Bewegliche Bandführung
20 - Funktionsteuermotor
22 - Steuernocke
28 - Antriebsrollenachse
29 - Wickelteller-Antriebsriemen
33 - Zwischenrolleneinheit
42 - Aufnahmesperre
43 - Abwickelteller
44 - Aufwickelteller
47 - Bandzugarm

## II - INTRODUCTION TO THE MECHANISM

List of the main parts :

**Fig. 1 :**
1 - Pinch roller assembly
2 - Tape guide
6 - Audio / CTL Head
10 - Drum motor assembly
11 - Full Erase head
13 - Anti-static brush

**Fig. 2 :**
15 - Mobile tape guide
20 - Function control motor
22 - Drive cam
28 - Capstan motor
29 - Reel drive belt
33 - Intermediate pulley
42 - Recording safety lock
43 - Supply reel hub
44 - Take-up reel hub
47 - Tape back tension arm

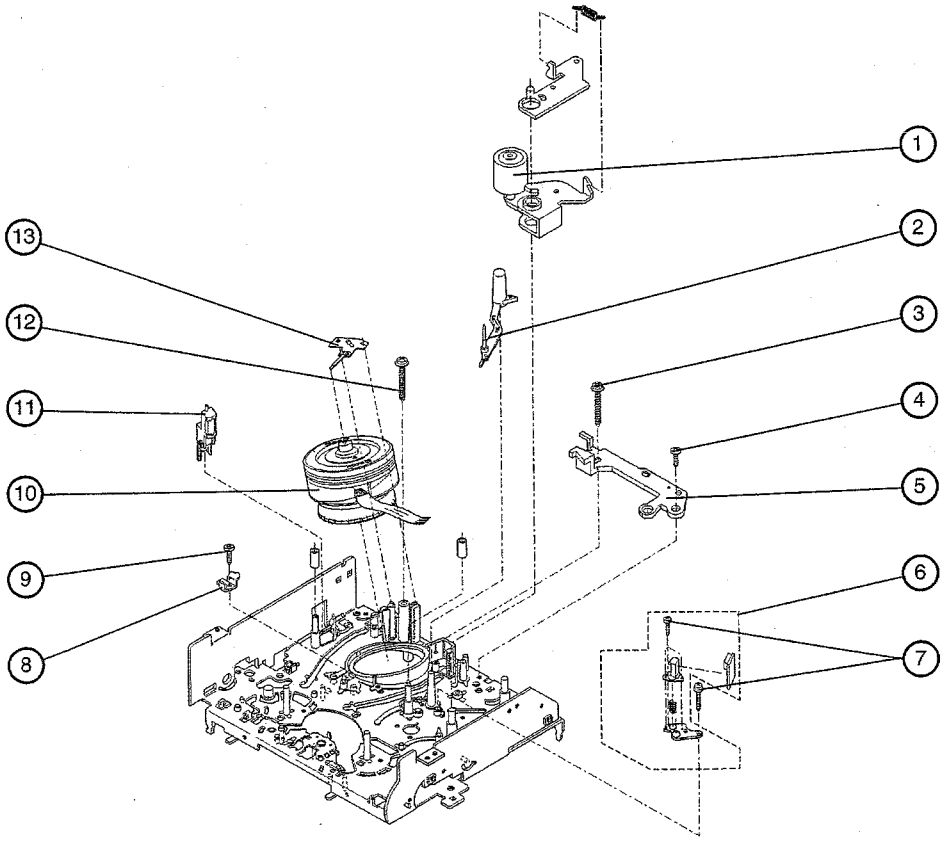


*fig. 1*

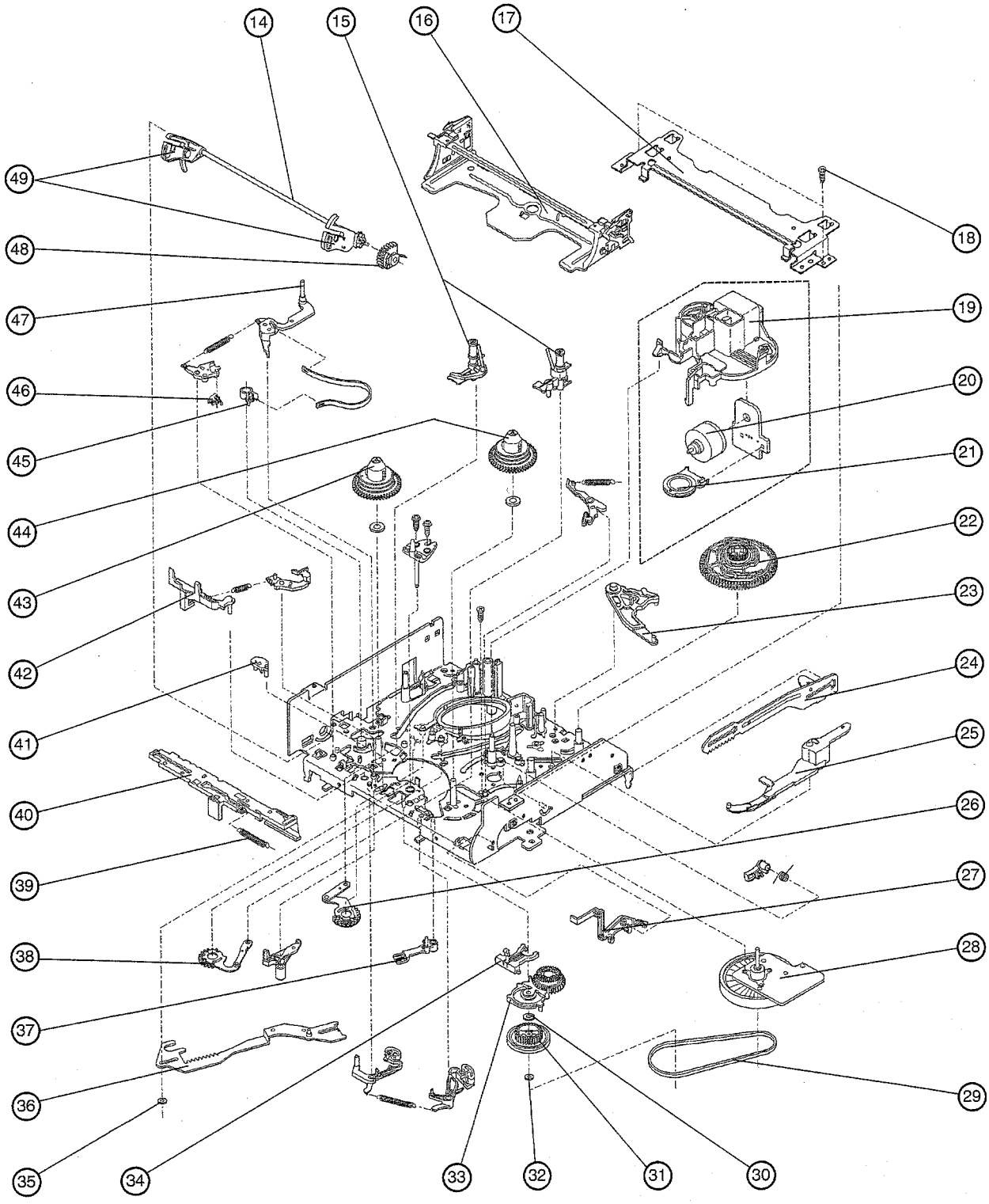
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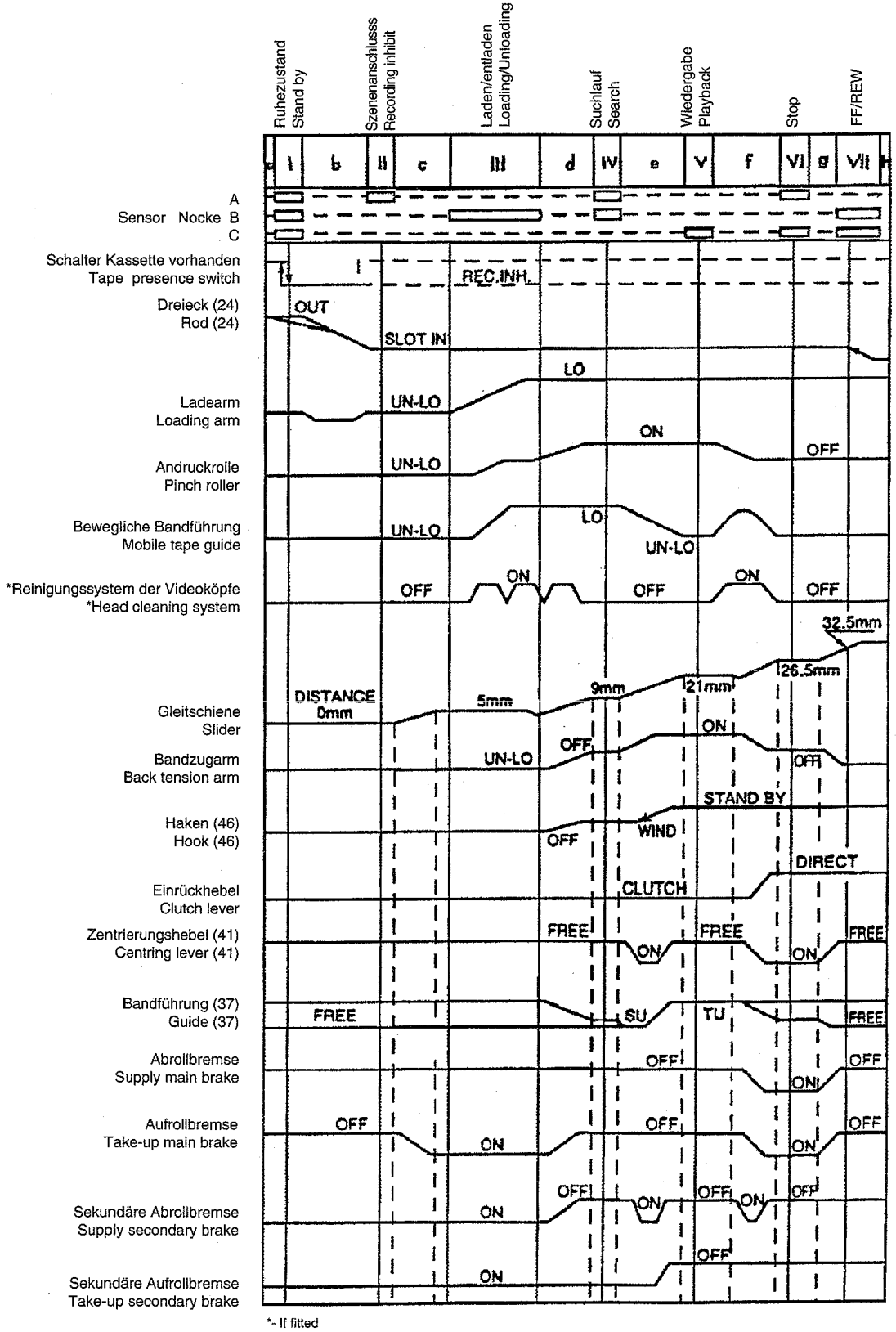
*fig. 2*

## III - FUNKTIONSBESCHREIBUNG

## III - DESCRIPTION OF THE OPERATION

### 1 - KONTROLLE DER FUNKTIONSABLÄUFE

### 1 - CHECKING FUNCTION SEQUENCE




*- If fitted

# IV- WARTUNG DES LAUFWERKS

⚠Module nicht bei eingeschaltetem Gerät entfernen ! Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.

## 1 - ZUGANG ZUM LAUFWERK

### 1) ABNEHMEN DES GEHÄUSES *(Abb. 3)*

- 3 Schrauben an der Rückseite des Gehäuses und, falls vorhanden, die zwei seitlichen Schrauben entfernen.
- Das Gehäuseoberteil leicht nach hinten ziehen und abheben.
- Die zwei Schrauben, mit denen die Frontblende befestigt ist, links und rechts am Kassettenschacht entfernen.
- 6 Clips (4 an der Oberseite und 2 an der Unterseite) anheben und die Frontblende abnehmen
- Die 2 Schrauben (S1), mit denen das Netzteil befestigt ist, entfernen. Das Netzteil herausnehmen.
- Verbindungsleitungen zur Frontplatine lösen.
- Die 6 Clips (I1), die die Hauptplatine halten, lösen und die Einheit Laufwerk/Platine herausheben.

### 2) AUSBAUEN DES LAUFWERKS *(Abb. 3, 4)*

- Verbindungsleitungen zu Funktionskontroll- und Kopftrommel-Motor sowie zum Ton-/ Kontrollkopf lösen.
- Schraube (S2) und Antriebsriemen vom Capstanmotor (29) entfernen.
- Schraube (12) an der Antistatikbürste entfernen.
- Schraube (9) und Metallstück (8) entfernen.
- Die 4 Halteclips (I2) lösen und die Laufwerkseinheit anheben; dabei auf die Anschlüsse des Löschkopfs und des Capstanmotors achten.

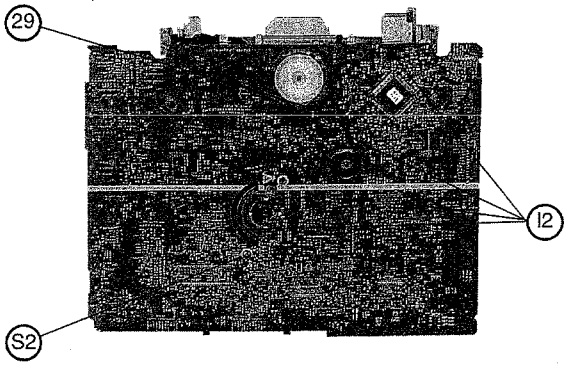



*fig. 4*

### 3) AUSBAUEN UND WIEDEREINBAUEN DER KASSETTENHALTERUNG *(Abb. 3 bis 5b)*

**AUSBAUEN:** *(Abb. 3 und 4)*

- 2 Schrauben links und rechts am Kassettenschacht lösen.
- Den oberen Teil des Kassettenschachtes abheben.
- Den Kassettenhalter bis zum vorderen Anschlag zurückziehen.
- Die zur Kopftrommel zeigende Seite des Kassettenhalters leicht anheben.
- Die weißen Hebel links und rechts am Kassettenhalter entriegeln und den Kassettenhalter in Richtung Kopftrommel schieben, bis die hinteren Führungszapfen aus ihrer Führung genommen werden können
- Jetzt den Kassettenhalter wieder in die entgegengesetzte Richtung ziehen, bis auch die vorderen Führungszapfen aus der Führung genommen werden können.

# IV- MECHANISM MAINTENANCE

⚠ Do not disconnect modules when they are energized! Repairs on power supply section are to be carried out only with isolating transformer.

## 1 - ACCESS TO MECHANISM

### 1) REMOVAL OF THE CHASSIS *(fig. 3)*

- Remove 3 screws at the rear of the cover and the two side screws.
- Pull the cover slightly backwards and lift it off.
- Remove 2 screws and release 6 clips (4 on the top and 2 on the bottom) securing the front panel.
- Remove 2 screws (S1) securing the power supply unit.
- Carefully remove the power supply unit.
- Unclip the front panel.
- Release 6 clips (I1) securing the main board and lift the mechanism/board assembly out.

### 2) REMOVAL OF THE MECHANISM *(fig. 3 and 4)*

- Disconnect the function control and drum motors and the audio control head leads.
- Remove screw (S2) and the capstan motor belt (29).
- Remove screw (12) securing the anti-static brush.
- Remove screw (9) and the metal part (8).
- Release the 4 securing clips (I2) and lift the assembly paying attention to the connectors of the full erase head and of the capstan motor.

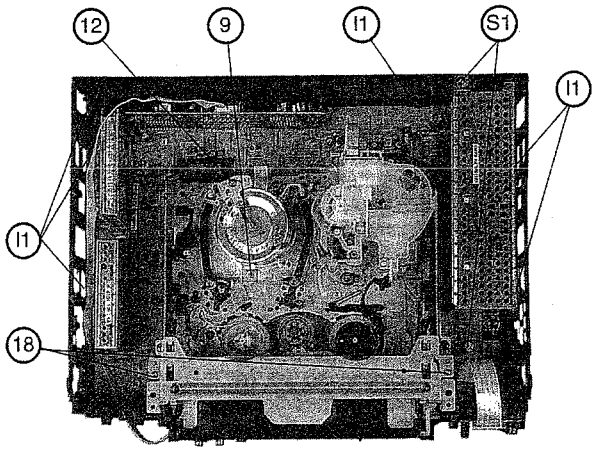



*fig. 3*

### 3) REMOVAL AND REFITTING OF THE CASSETTE HOLDER *(fig. 3 to 5b)*

**REMOVAL:** *(fig. 3 and 4)*

- Take out two screws at the left and the right side of the upper part of the cassette holder.
- Remove the upper part of the cassette holder.
- Pull the remaining part to the upper end position. (Eject position)
- Lift the cassette holder at the side, which shows to the drum
- Release the white levers (left and right of the casstte holder) and push the cassette holder towards the drum until the guide pins at the rear side come out of the guide rails.
- Now pull the cassette holder in the opposite direction until the guide pins at the front side also come out of the guide rails.

**WIEDEREINBAUEN:** *(Abb. 5a, 5b, 5c und 7)*
- Die vorderen Ansätze des Kassettenträgers wie in Abb. 5a dargestellt einsetzen.
- Die hinteren Ansätze (P1) des Kassettenträgers in Richtung des Trommelmotors kippen.
- Die Hebel (P2) nach oben halten und dabei leicht den Kassettenträgers nach hinten drücken, um so die Ansätze (P3) in die Gleitschienen einzusetzen.
- Den Hebel der Kassettenträgerklappe (27) einsetzen, Abb. 7.
- Die Hebel (P2) wie in Abb.5b dargestellt positioneren, bevor der obere Teil wieder aufgesetzt wird (Abb.5c).

**REFITTING:** *(fig. 5a , 5b,5c and 7)*
- Move the pins at the front of the cassette holder as shown in figure 5a.
- Move the pins at the back of the cassette holder towards the drum motor.
- Whilst holding the levers , gently push the cassette holder back, so that the back pins go into runners .
- Position the lever of the cassette holder door as shown in figure 7.
- Position the levers as shown in figure 5b before fitting the top unit (figure 5c).

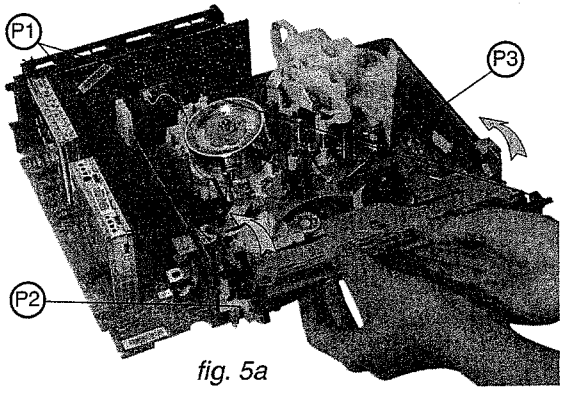


*fig. 5a*

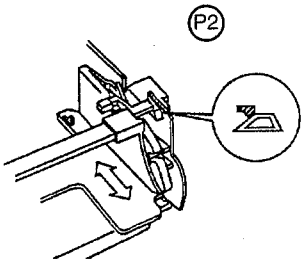


*fig. 5b*

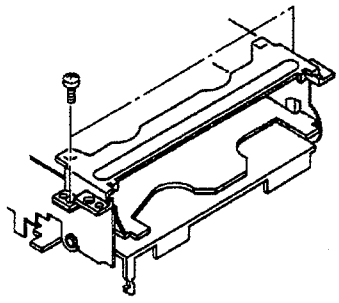


*fig. 5c*

## 2 - AUSTAUSCHEN DER WICHTIGSTEN LAUFWERKTEILE

**1) AUSTAUSCH DER TROMMELANTRIEBSEINHEIT:**
*(Abb. 6)*

**AUSBAUEN:**
- Um die Trommelantriebseinheit auszubauen, ist es nicht nötig, das Laufwerk herauszunehmen.
- Den Trommelantrieb abtrennen.
- Schraube (12) und Antistatikbürste entfernen.
- Die Schrauben (3), (4) und (9) sowie die Metallteile entfernen.
- Das Reinigungssystem der Videoköpfe ausbauen.
- Die Trommelantriebseinheit herausnehmen.

**WIEDEREINBAUEN:**
- In umgekehrter Reihenfolge zum Ausbau vorgehen und dabei vor dem Befestigen von Teil (5) die Trommel leicht gegen den Abwickelteller drücken.
- Den Bandlauf überprüfen.

## 2 - REPLACEMENT OF THE MAIN PARTS ON THE MECHANISM.

**1) REPLACEMENT OF THE DRUM MOTOR:**
*(fig. 6)*

**REMOVAL:**
- It is not necessary to remove the mechanism, in order to remove the drum motor.
- Disconnect the drum motor.
- Remove screw (12) and the anti-static brush.
- Remove screws (3), (4) and (9) and metal parts.
- Remove video head cleaning system.
- Remove the drum motor.

**REFITTING:**
- Perform removal operations in reverse order by pushing the drum slightly towards the supply reel before securing the part (5).
- Check the tape path.

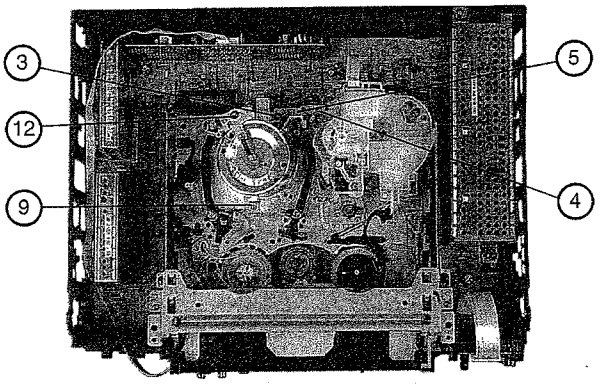


*fig. 6*

## 2) AUSTAUSCH DES BANDZUGARMS:
*(Abb. 7 und 8)*

**AUSBAUEN:**
- Den Clip (I3) öffnen und den gezahnten Hebel (48) herausziehen.
- Den Hebel (27) entfernen.
- Die Antriebsachse (14) der Kassettenhalterung nach rechts schieben, um sie aus ihrem Sitz zu nehmen.
- Die Achse erst links, dann rechts anheben.
- Die Feder (39) lösen.
- Den Clip (I4) lösen und den Bandzugarm und die Bremse anheben.
- Den Clip (I5) öffnen, um die Befestigung (45) der Bandzugbremse zu lösen.

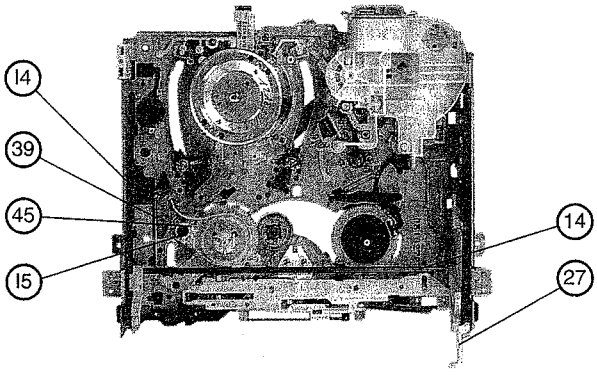



*fig. 7*

**WIEDEREINBAUEN:**
- Die Befestigung (45) der Bandzugbremse anbringen.
- Die Bremse um den Abwickelteller legen.
- Den Bandzugarm einsetzen und andrücken, um ihn festzuklemmen.
- Die Feder (39) wieder anbringen.
- Die Achse (14) in ihren Sitz einsetzen.
- Den gezahnten Hebel (48) einsetzen und dabei den ersten Zahn mit dem Kennzeichen (M1) ausrichten.
- Nach dem Austausch des Bandzugarms muß dessen Position gemäß der Angaben auf Seite 13 neu eingestellt werden.

## 3) AUSTAUSCH VON TON-UND KONTROLLKOPF:
*(Abb.9)*

**AUSBAUEN:**
- Den Stecker (C1) herausziehen.
- Die 2 Schrauben (7) entfernen und dann die Kontrollkopfeinheit anheben.

## 2) REPLACEMENT OF THE TAPE BACK TENSION ARM
*(fig. 7 and 8)*

**REMOVAL:**
- Release clip (I3) and remove the toothed lever (48).
- Remove lever (27).
- Slide the cassette holder pin (14) to the right in order to release it from its housing.
- Lift the pin from the left and then from the right.
- Remove spring (39).
- Release clip (I4) and lift the tape back tension arm and brake.
- Release clip (I5) in order to free the attachment (45) of the tape back tension brake.

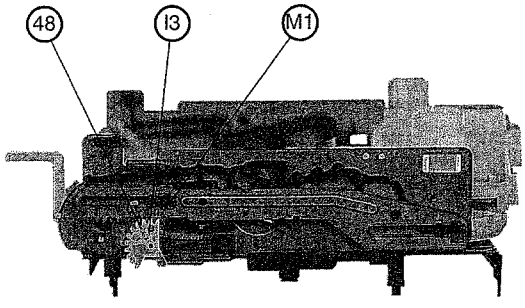



*fig. 8*

**REFITTING:**
- Fit attachment (45) of the tape back tension brake.
- Wind the brake around the supply reel.
- Insert the tape tension arm and press to clip in to position.
- Refit spring (39).
- Refit pin (14) in its housing.
- Fit the toothed part (48) by aligning the first tooth with the marking (M1).
- After replacing the tape back tension arm, its position must be re-set as shown in page 13.

## 3) REPLACEMENT OF THE AUDIO-CONTROL HEAD.
*(fig. 9)*

**REMOVAL:**
- Disconnect connector (C1).
- Remove 2 screws (7) and lift the audio-control head.

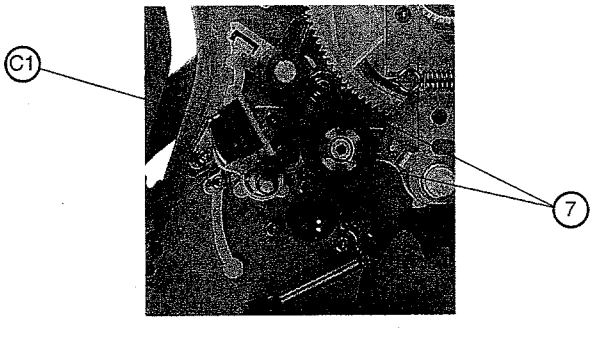



*fig. 9*

**WIEDEREINBAUEN:**
- In umgekehrter Reihenfolge zum Ausbau vorgehen.
- Folgende Einstellungen vornehmen: Azimut, Höhe, Neigungswinkel und Kompatibilität (siehe Seite 15, Abschnitt B).

**4) AUSTAUSCHEN DES FUNKTIONSKONTROLLMOTORS:**
*(Abb. 10 und 11)*

**AUSBAUEN:**
- Das Reinigungssystem der Videoköpfe ausbauen.
- In der angegebenen Reihenfolge die 4 Clips (I6), (I7), (I8) und (I9) lösen. Dann die Einheit Gehäuse /Funktionskontrollmotor anheben.
- Das Teil (P4) nach vorherigem Öffnen des entsprechenden Clips anheben.
- Das Getriebe (P5) herausnehmen.
- Das Ende der Gewindestange (P6) leicht anheben.
- Den Clip (I10) des Funktionsschalters lösen.
- Die Einheit Motor/Schalter aus der Gleitschiene (P7) nehmen.
- Den Motor ablöten.

**WIEDEREINBAUEN:**
- Darauf achten, daß das Loch (H1) der Nocke über dem des Gehäuses liegt.
- In umgekehrter Reihenfolge zum Ausbau vorgehen, ohne dabei zu vergessen, die Gewindestange in ihre Clips einzusetzen und darauf zu achten, daß die Kennzeichen (M2) des Funktionsschalters und (M3) des Gehäuses übereinstimmen.

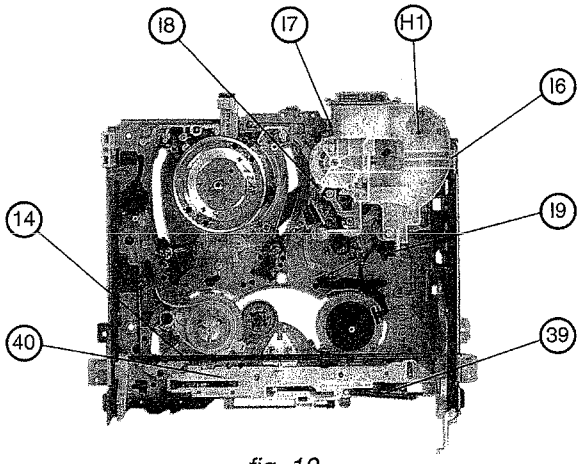



*fig. 10*

**5) AUSTAUSCH DER FUNKTIONSSTEUERNOCKE:**
*(Abb. 10, 12, 13 und 14)*

**AUSBAU:**
- Die Einheit Gehäuse/Funktionskontrollmotor gemäß den Angaben des vorherigen Kapitels ausbauen.
- Die Antriebsachse (14) der Kassettenhalterung ausbauen.
- Die Feder (39) und die Gleitschiene (40) entfernen.
- Die Andruckrolle (1) und den Hebel (25) entfernen.
- Die Nocke herausnehmen.

**REFITTING:**
- Perform the removal operations in reverse order.
- Adjust the azimuth, height, inclination and check compatibility (see page 15 section B).

**4) REPLACEMENT OF THE FUNCTION CONTROL MOTOR:**
*(fig. 10 and 11)*

**REMOVAL:**
- Remove the video head cleaning system.
- Release, in this order, 4 clips (I6), (I7), (I8) and (I9) securing the casing and function control motor assembly and lift it.
- Lift part (P4) after releasing its clip.
- Remove gear (P5).
- Slightly lift the end of the worm screw (P6).
- Release clip (I10) of the function switch.
- Remove the motor/switch assembly from the slide rail (P7).
- Unsolder the motor connections.

**REFITTING:**
- Check that hole (H1) on the cam is exactly over the hole on the chassis.
- Perform removal operations in reverse order remembering to insert the worm screw in its clips and making sure that the markings (M2) on the function switch correspond to the markings (M3) on the casing.

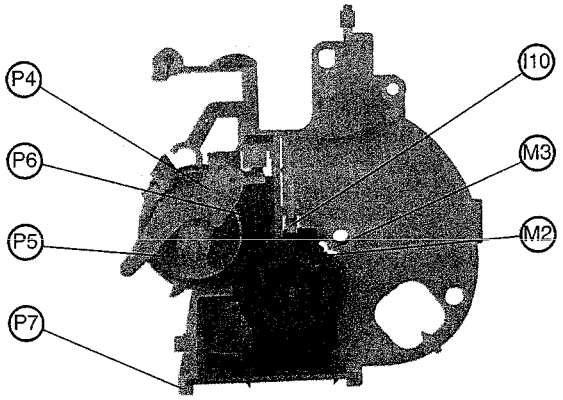



*fig. 11*

**5) REPLACEMENT OF THE CONTROL CAM:**
*(fig. 10, 12, 13 and 14)*

**REMOVAL:**
- Remove the casing and function control motor assembly as discribed in the previous section 4.
- Remove cassette holder drive pin (14).
- Remove spring (39) and the slide rail (40).
- Remove pinch roller (1) and the lever (25).
- Remove the cam.

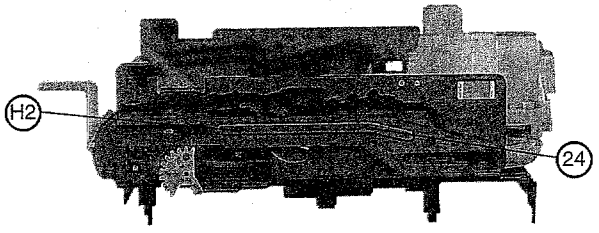



*fig. 12*

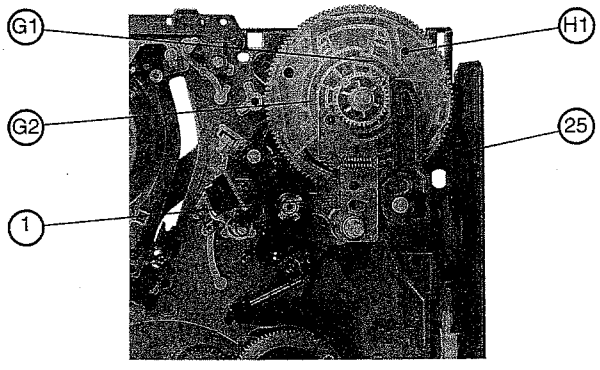



*fig. 13*

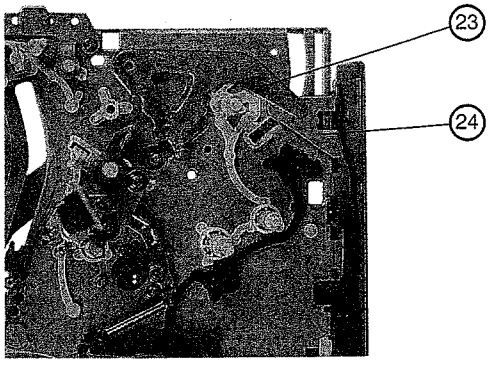



*fig. 14*

**WIEDEREINBAUEN:**

- Die beweglichen Bandführungen und den Bandzugarm am Anschlag "Ausgabe" festhalten.
- Den Hebel (23) montieren und dabei sorgfältig seinen Zapfen in das Loch des Dreiecks (24) einführen.
- Das Dreieck (24) so positionieren, daß das Loch (H2) über dem des Gehäuses liegt.
- Die Nocke so positionieren, daß das Loch (H1) über dem des Gehäuses liegt.
- Den Hebel (25) einsetzen und dabei seinen Zapfen in die Auskehlung (G1) einführen.
- Die Andruckrolle unter Einführen des Zapfens in die Auskehlung (G2) anbringen und dann die Einheit Gehäuse/ Funktionskontrollmotor einsetzen. Dabei ist darauf zu achten, daß das Kennzeichen auf dem Schalter dem des Gehäuses gegenüberliegt.
- Die Gleitschiene (40) einsetzen und die Feder (39) wieder anbringen.

**REFITTING**

- Hold the mobile guide rails and the tape back tension arm against the unloading stop.
- Fit lever (23) making sure that the nipple is fitted inside the hole on the rod (24).
- Position the rod (24) so that hole (H2) is exactly over the hole on the chassis.
- Position the cam so that hole (H1) is exactly over the hole on the chassis.
- Fit lever (25) by inserting its nipple in the groove (G1).
- Fit the pinch roller by inserting its nipple in the groove (G2) and then fit the casing and function control motor assembly, making sure that the marking on the switch is opposite the marking on the casing.
- Fit slide rail (40) and spring (39).

**6) AUSTAUSCH DER LADEARME:**
*(Abb. 15 und 16)*

**AUSBAU:**

- Den Clip (35) entfernen und den Antriebshebel (36) der Ladearme abnehmen.
- Die Ladearme anheben.

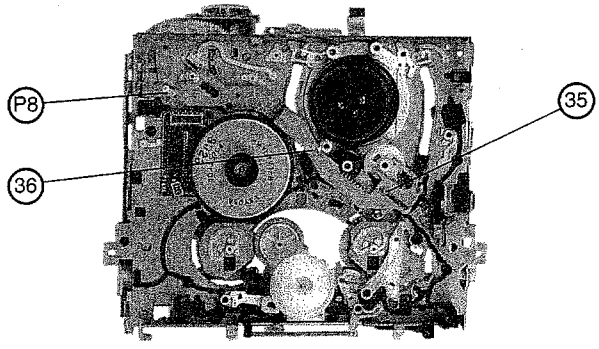



*fig. 15*

**WIEDEREINBAU:**

- Die beweglichen Bandführungen am Anschlag "Ausgabe" festhalten.
- Erst den Aufroll- dann den Abroll-Ladearm einbauen, und zwar so, daß sich die Kennzeichen (M4) und (M5) gegenüberliegen.
- Das Ende des Hebels (36) soweit in die Gleitschiene (P8) schieben, bis sich das Kennzeichen (M6) und der erste Zahn des Aufrollgetriebes einander gegenüberliegen.
- Den Clip wieder anbringen.

**6) REPLACEMENT OF THE TAPE LOADING ARMS**
*(fig. 15 and 16)*

**REMOVAL:**

- Remove clip (35) and remove the tape loading arm drive lever (36).
- Remove the take-up and supply insertion arms.
- Remove mobile tape guides .

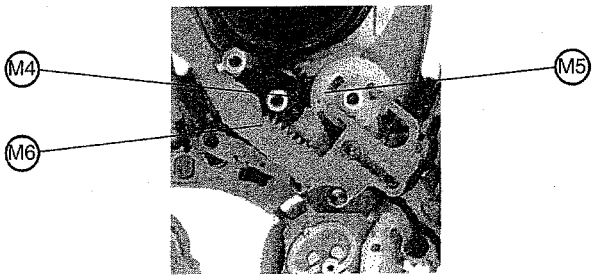



*fig. 16*

**REFITTING:**

- Fit the mobile tape guides and hold against the play position on the main deck.
- Fit the take-up guide insertion arm followed by the supply guide insertion arm making sure that the alignment holes (M4) and (M5) are facing each other.
- Insert the end of the lever (36) in the slide rail (P8) and then slide it until the marking (M6) is facing the first tooth of the take-up gear.
- Refit the clip.

**7) AUSTAUSCHEN DES ZWISCHENGETRIEBES:**
*(Abb. 17, 18 und 19)*

**AUSBAUEN:**
- Die Gleitschiene (40) ausbauen.
- Den Clip (32) und das Getriebe (31) entfernen.
- Den Clip (I11) lösen und die Führung (37) herausnehmen.
- Den Clip (30) entfernen und das Zwischengetriebe (33) anheben.

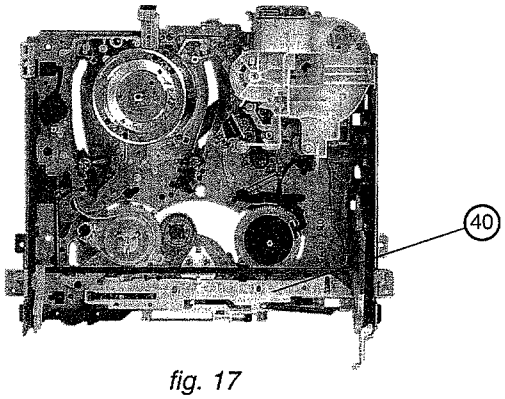



*fig. 17*

**WIEDEREINBAUEN:**
- Den Einrückhebel (34) in die Auskehlung des Zwischengetriebes einführen und dann dieses auf seiner Achse positionieren.
- In umgekehrter Reihenfolge zum Ausbau vorgehen.

**7) REPLACEMENT OF THE INTERMEDIATE PULLEY:**
*(fig. 17, 18 and 19)*

**REMOVAL:**
- Remove slide rail (40).
- Remove clip (32) and gear (31).
- Release clip (I11) and remove guide (37).
- Release clip (30) and lift the intermediate pulley (33) off.

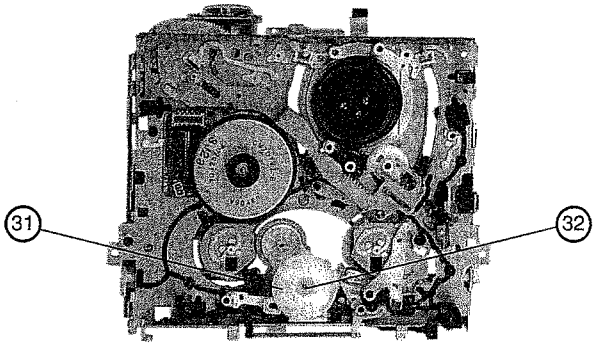



*fig. 18*

**REFITTING :**
- Insert the clutch tab (34) in the groove of the intermediate pulley and fit the latter on its spindle.
- Perform the removal operations in reverse order for the other parts.

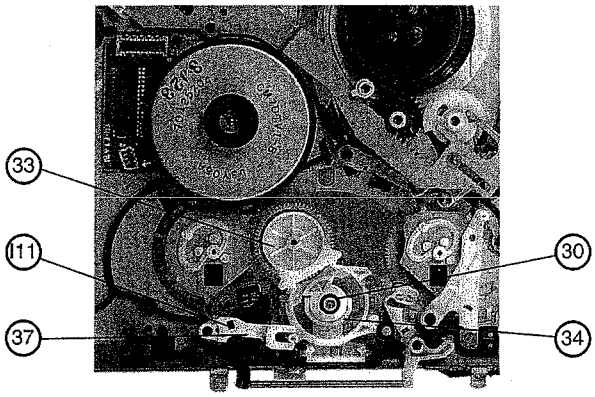



*fig. 19*

## V - MECHANISCHE EINSTELLUNGEN UND KONTROLLEN

ERFORDERLICHES MATERIAL:

- Bandzug-Meß-Kassette.
- Kassette MH4.
- Zweistrahloszilloskop mit Bandbreite >10 MHz.
- Fernsehgerät oder Farbmonitor.

### 1 - EMPFEHLUNGEN DES HERSTELLERS:

- Nach allen Eingriffen an einem Laufwerk ist es ratsam, die Reinigungs-, Überprüfungs und Einstellarbeiten des Bandlaufs vorzunehmen.

## V - ADJUSTMENTS AND MECHANICAL CHECKS

EQUIPMENT REQUIRED:

- Torque measurement cassette .
- MH4 tape.
- One dual-trace oscilloscope, pass band > 10 MHz.
- One colour television set or monitor.

### 1 - MANUFACTURER RECOMMENDATIONS:

- Before any work is carried out on the mechanism, the tape path should be cleaned, checked and adjusted.
- Check that the mobile tape guides rotate freely.

- Stellen Sie sicher, daß sich die beweglichen Bandführungen frei drehen.
- Nach dem Einlegen der Kassette prüfen, ob sich die beweglichen Bandführungen in ihren Endpositionen befinden.
- Prüfen, ob die Capstanachse und die Andruckrolle parallel zueinander stehen.
- Mit einem Tupfer alle Partien reinigen, die sich in direktem Kontakt zum Band befinden.
- Zur Reinigung der Kopftrommel, der Videoköpfe und des Drehtransformators wird empfohlen, Baumwollhandschuhe zu tragen, um Fettablagerungen auf den Flächen zu verhindern, die mit dem Band in Berührung kommen.

- After insertion, check that the mobile tape guides are correctly positioned in their stops.
- Check that the capstan shaft and the pinch roller are parallel.
- Using a pad, clean all the parts directly in contact with the tape.
- To clean the video head drum , it is recommended to wear cotton gloves and use a pad so that there are no grease marks left on the surfaces in contact with the tape.

## 2 - EINSTELLEN DER BANDZUGBREMSE:

*(Abb. 20)*

- Die Kassettenhalterung ausbauen.
- Den Videorecorder auf Wiedergabe schalten.
- Mit einem Schraubendreher die Schraube (S3) soweit festdrehen, bis sich der BANDZUG-Fühlhebel 7,5 ± 1mm vom Gehäuserand entfernt befindet (durch den langen Strich (M7) gekennzeichnet).
- Den Bandzug wie nachstehend angegeben überprüfen.

## 2 - TAPE BACK TENSION BRAKE ADJUSTMENT

*(fig. 20)*

- Remove the cassette holder.
- Set mechanism in playback mode.
- Using a screwdriver turn screw (S3) so that the arm tension pin is 7.5 ± 1 mm from the edge of the chassis (marked by the long line (M7)).
- Check the tape tension as shown below.

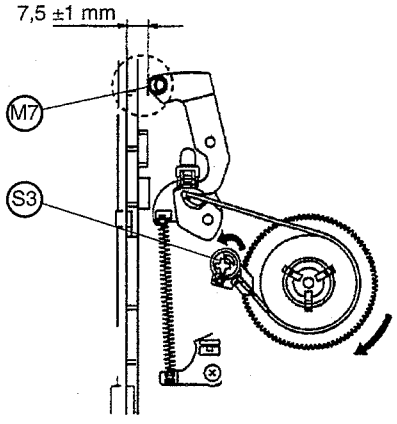



*fig. 20*

## 3 - ÜBERPRÜFUNG DES BANDZUGS UND DES WICKELTELLER-DREHMOMENTES:

**BANDZUG :**

- Die Bandzug-Meßkassette abspielen.
- Der Bandzug auf dem Abwickelteller muß zwischen **45** und **95** g/cm betragen.
- Wenn der Bandzug nicht in diesem Bereich liegt, die Wickelteller-Kopplungseinheit austauschen.

**WICKELTELLER-DREHMOMENT :**

- Das Drehmoment des Aufwickeltellers muß zwischen **125** und **200** g/cm betragen.
- Wenn der Bandzug nicht in diesem Bereich liegt, die Wickelteller-Kopplungseinheit austauschen.

## 3 - CHECKING THE BACK TAPE TENSION AND THE SUPPLY REEL TORQUE:

**TAPE TENSION:**

- Use the torque measurement cassette in the Playback mode.
- The tension on the tape on the reel must be between **45** and **95** gr/cm.
- If the tension lies outside these values, replace the clutch assembly.

**REEL TAKE-UP TORQUE:**

- The torque on the take-up reel must be between **125** and **200** gr/cm.
- If this is not the case, replace the take-up reel drive clutch assembly.

## 4 - STATIK-EINSTELLUNGEN AM BANDLAUF:

*(Abb. 21)*

**VORSICHTSMASSNAHMEN:**

Der Bandlauf wurde im Werk präzise eingestellt, er braucht also nicht nachgestellt werden. Dennoch können Verschleißerscheinungen oder ein Defekt des Gerätes, der

## 4 - STATIC ADJUSTMENTS OF THE TAPE PATH: *(fig. 21)*

**PRECAUTIONS:**

The video tape path is precisely aligned at the factory and breakdown may require the replacement of parts and necessitate the adjustment of the tape path. **For this**

das Auswechseln eines sich auf dem Bandlauf befindlichen Teiles erforderlich macht, dazu führen, daß der Bandlauf neu eingestellt werden muß. **Wir empfehlen, für diesen Arbeitsgang keine Abgleich-Kassette zu verwenden.** Schalten Sie das Gerät auf Wiedergabe und ziehen Sie nach erfolgtem Einfädeln den Netzstecker. Überprüfen Sie die richtige Bandlage in der Mechanik: das Band muß den Bandzugpin, den Löschkopf, die beweglichen Bandführungen, die Ton-/Kontrollkopfeinheit, die Videokopftrommel und die festen Aufrollbandführungen berühren.

**operation, it is recommended that the alignment test tape is not used.** Load a normal video cassette, select the PLAYBACK mode and allow the tape to fully load, switch OFF the power . Check that the tape is correctly loaded around the mechanism, the tape must be in contact with the following items, back tension pole, the full erase head, tape guides, video head drum and audio-control head.

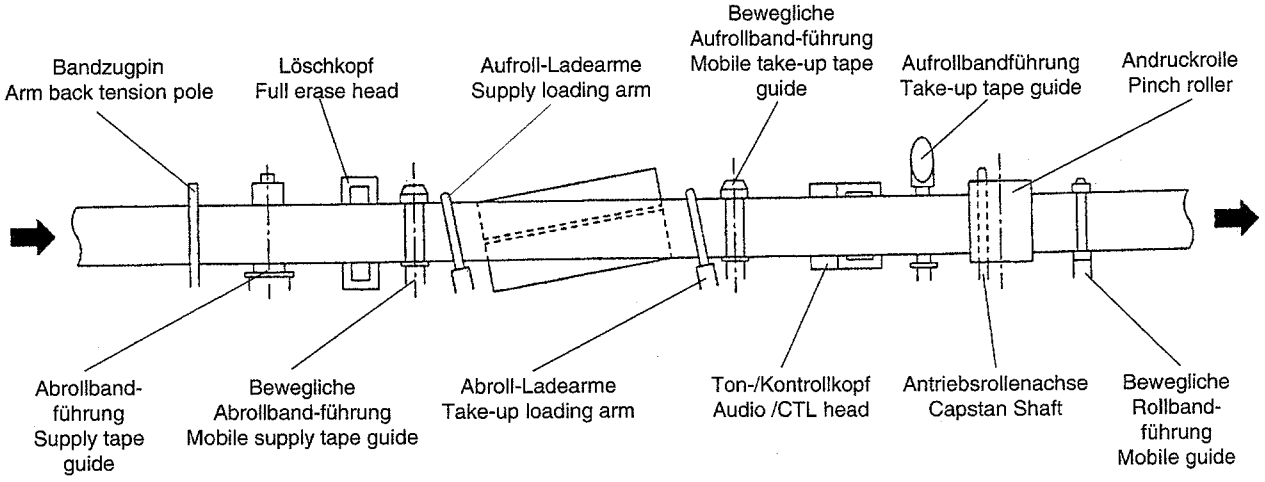



*fig. 21*

**VOREINSTELLUNG DER BEWEGLICHEN BANDFÜHRUNGEN:**
Wenn das Band an einer der Bandführungen nicht glatt anliegt, diese so einstellen, bis das Band glatt anliegt.

**VOREINSTELLUNG DES TON-/KONTROLLKOPFES:**
*(Abb. 22)*
Wenn das Band an der festen Aufrollbandführung nicht glatt anliegt, den Neigungswinkel (I) der Ton-/Kontrollkopfeinheit nachstellen.

**MOBILE TAPE GUIDE PRE-SETTING:**
If there is tape folding on one of the mobile tape guide, adjust the position of the guide for correct alignment.

**AUDIO CONTROL HEAD PRE-SETTING:**
*(fig. 22)*
If the tape folds on the take-up tape guide, adjust the inclination (I) of the audio control head.

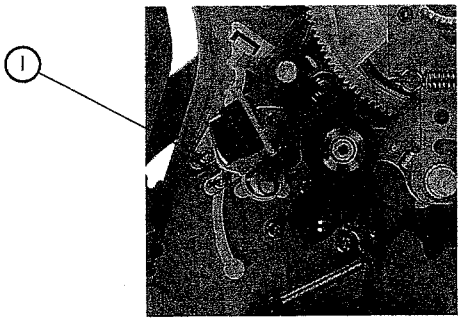



*fig. 22*

## 5 - DYNAMIK-EINSTELLUNGEN AM BANDLAUF:

Für diese Dynamik-Einstellungen:
- Die Kassettenhalterung ausbauen.
- Die Grauabstufungen der Referenzkassette ablesen.
- Auf einem Zweistrahl-Oszilloskop (mit Drum Flip Flop (BT002) getriggert) das Video-FM-Signal (BV131) sichtbarmachen (Umschalten der Videoköpfe auf Wiedergabe).

## 5 - DYNAMIC ADJUSTMENTS ON THE TAPE PATH:

For these dynamic adjustments:
- Remove the cassette holder.
- Playback the grey scale section on the alignment tape.
- Display on a dual-trace oscilloscope the FM video signal (BV131) synchronized by the 25 Hz flip-flop (BT002) (switching of the video heads in playback mode).

## A - Feineinstellung der beweglichen Bandführungen:

*(Abb. 23)*

Die optimale Einstellung ist erreicht, wenn die FM-Hüllkurve von Spuranfang bis Spurende eine konstante Amplitude hat.
Eine schlechte Einstellung der beweglichen Abrollbandführung zieht entweder ein Rasterflimmern oder einen Rauschbalken im oberen Teil des Bildes nach sich.
Gleichen Sie die bewegliche Abrollbandführung so ab, daß jegliche Stauchung der FM-Hüllkurve am Spuranfang vermieden wird. Eine schlechte Einstellung der beweglichen Aufrollbandführung zieht Rauschbalken im unteren Teil des Bildes nach sich.
Gleichen Sie die bewegliche Aufrollbandführung so ab, daß jegliche Stauchung der FM-Hüllkurve am Spurende vermieden wird.
Stellen Sie durch Betätigen der Spurlagenfunktion sicher, daß die Amplitude der FM-Hüllkurve von Spuranfang bis Spurende gleichmäßig abnimmt. Falls dies nicht der Fall ist, wiederholen Sie bitte den Abgleich.

## A - Fine adjustment of the mobile tape guides:

*(fig. 23)*

The optimum adjustment is obtained when the amplitude of the FM envelope is constant from the beginning to the end of the track.
If the mobile supply tape guide is incorrectly set, either the frame jumps or there is a noise bar at the top of the screen.
Adjust the mobile supply tape guide to eliminate any constriction of the FM envelope at the beginning of the track.
If the mobile take-up tape guide is incorrectly set, there will be noise bars at the bottom of the screen.
Adjust the mobile take-up tape guide to eliminate any constriction of the FM envelope at the end of the track.
Check, using the tracking control, that the amplitude of the FM envelope decreases in a linear manner from the beginning to the end of the track. If there is pinching of the envelope on the supply or take-up side, re-adjust the corresponding tape guide.

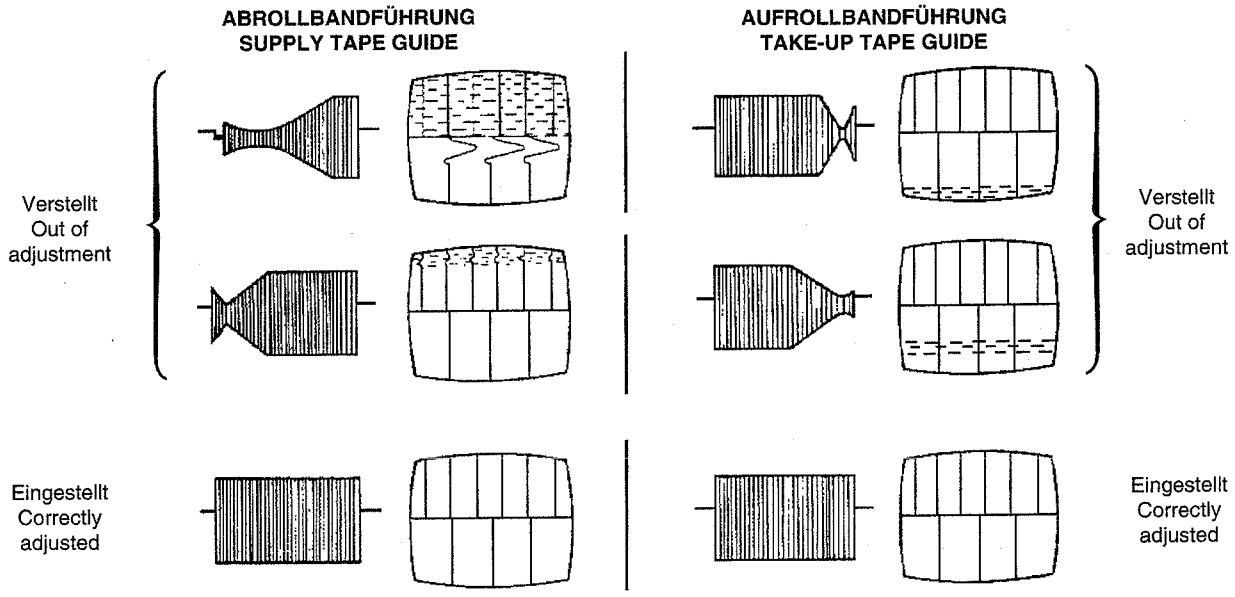



*fig. 23*

## B - Feineinstellung des Ton- / Kontrollkopfes

*(ABB. 24 und 25)*

Die richtige Einstellung der Lage des Ton- / Kontrollkopfes ist notwendig, um ein korrektes Audio-Ausgangssignal und einen optimalen Rauschabstand zu garantieren.
Ein Abgleichfehler kann außerdem zu einer Instabilität in der Servo-Regelung führen. Besonders wichtig ist diese Einstellung bei Geräten mit Index Suchlauf.
Zur Beobachtung des Audio-Signals wird ein Oszilloskop an den Audio Ausgang angeschlossen.

- Testkassette mit Grautreppe und Audio-Signal (6kHz) abspielen.
- Die Azimut-Schraube (A) nachstellen, bis das Maximum des Audio-Signals am Ausgang erreicht ist.
- Die Höhe des Ton- /Kontrollkopfes mit der Mutter (H) so einstellen, daß das Audio-Signal eine flache Hüllkurve aufweist.
- Die Schrauben (A) und (H) abwechselnd und immer nur wenig (nicht mehr als 45° auf einmal) nachstellen, um einen maximalen Audio-Pegel am Ausgang zu erzielen.

## B - Fine adjustment of the audio control head :

*(fig. 24 and 25)*

The position of the audio control head must be correctly set to ensure that the audio output and the signal /noise ratio are correct.
A misalignment may cause the servo circuits to be unstable. The precision of the adjustment is particularly important for models with index search.
To observe the audio signal, connect an oscilloscope to the AUDIO output.

- Playback the grey scale pattern on video cassette (Audio 6 kHz).
- Adjust the azimuth screw (A) to obtain the maximum output level.
- Adjust the height of the audio control head on the screw (H) so that the envelope of the audio signal is flat.
- Adjust the screws (A) and (H) in alteration and in small steps (45° at a time) to obtain the maximum output level.

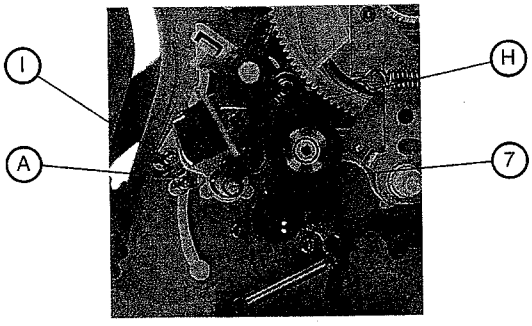



*fig. 24*

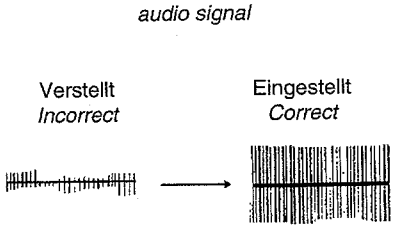



*fig. 25*

### C - Kompatibilitätseinstellung *(Abb. 24 )*

Zunächst muß der Videorecorder in sich kompatibel sein. Dazu ein Farbbalken-Testbild aufnehmen und überprüfen, ob die Wiedergabe dieser Aufnahme optimal ist.
- Den Tastkopf eines Oszilloskops an den FM-Ausgang (BV131) anschließen. .
- Spurlagenfunktion aufrufen und durch Drücken der "+"- und "-" Tasten die Spurlage auf Null stellen.
- Das Oszilloskop extern mit dem Kopftrommel-Schaltsignal (Drum Flip Flop) triggern. Die positive Flanke zum Triggern verwenden, um das Signal von Kopf 2 darzustellen.
- FM-Wert für die Grautreppe ablesen.
- Die Schraube (7) lösen.
- Den Ton- / Kontrollkopfes unter Beachtung des Signals auf den Videoköpfen mit einem Kreuzschraubenzieher, der in die Einkerbung gesetzt wird (ohne das Gehäuse zu durchqueren), drehen, um den FM-Pegel auf Maximum zu stellen. Die Schraube (7) sofort wieder anziehen.
- Durch Betätigung der Spurlage-Funktion überprüfen, ob das Maximum des FM-Pegels in der Nullstellung erreicht ist.

### C - Compatibility adjustment *(fig. 24 )*

First of all, the video recorder must be made compatible with itself, it is therefore, necessary to record a colour bar test pattern and check that the playback of this recording is optimum.
- Connect the probe of the oscilloscope envelope to the FM output (BV131).
- Enter the tracking mode and select manual tracking.
- Press on the + and - keys and set the track to 0.
- Synchronize the oscilloscope with the head switching flip-flop. Use the positive trigger to display the signal from head 2.
- Playback the grey scale pattern.
- Loosen the screw (7).
- While observing the signal on the video heads, tilt the audio control head,using a Philips screwdriver placed in the notch (so as not to pass through the chassis), in order to obtain the maximum output level. Tighten the screw (7) immeddiately
- Check by pressing the + and - phase keys that the signal is maximum for a track equal to 0.

## VI - ÜBERPRÜFUNG DES LAUFWERKS UND FEHLERSUCHE

### 1 - ÜBERPRÜFUNG VON MOTOR- UND SENSORSYSTEM

Motor- und Sensorsystem wie in dem Diagramm auf Seite 17 dargestellt auf Fehlfunktionen untersuchen.

## VI - MECHANICAL DECK TROUBLE SHOOTING AND CHECK METHOD

### 1 - MOTOR SENSOR SYSTEM CHECK

Check whether any abnormalities are found in the motor or the sensor system as follows in the flow chart on page 17

Der Abstand von ▲ ist zulässig, wenn er innerhalb von 3 mm liegt
The clearance of ▲is allowable if it is within 3 mm

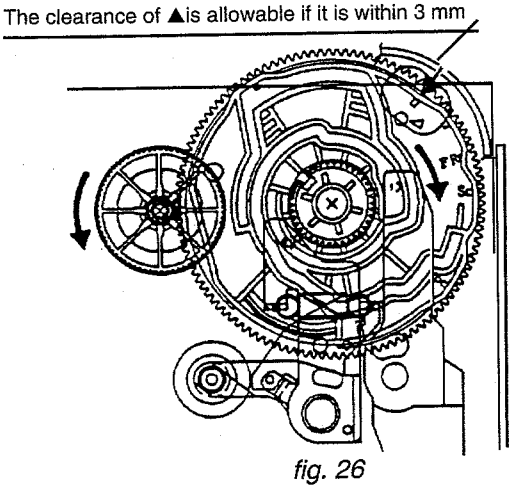
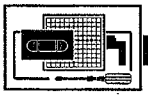
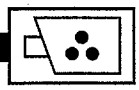
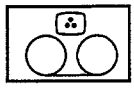
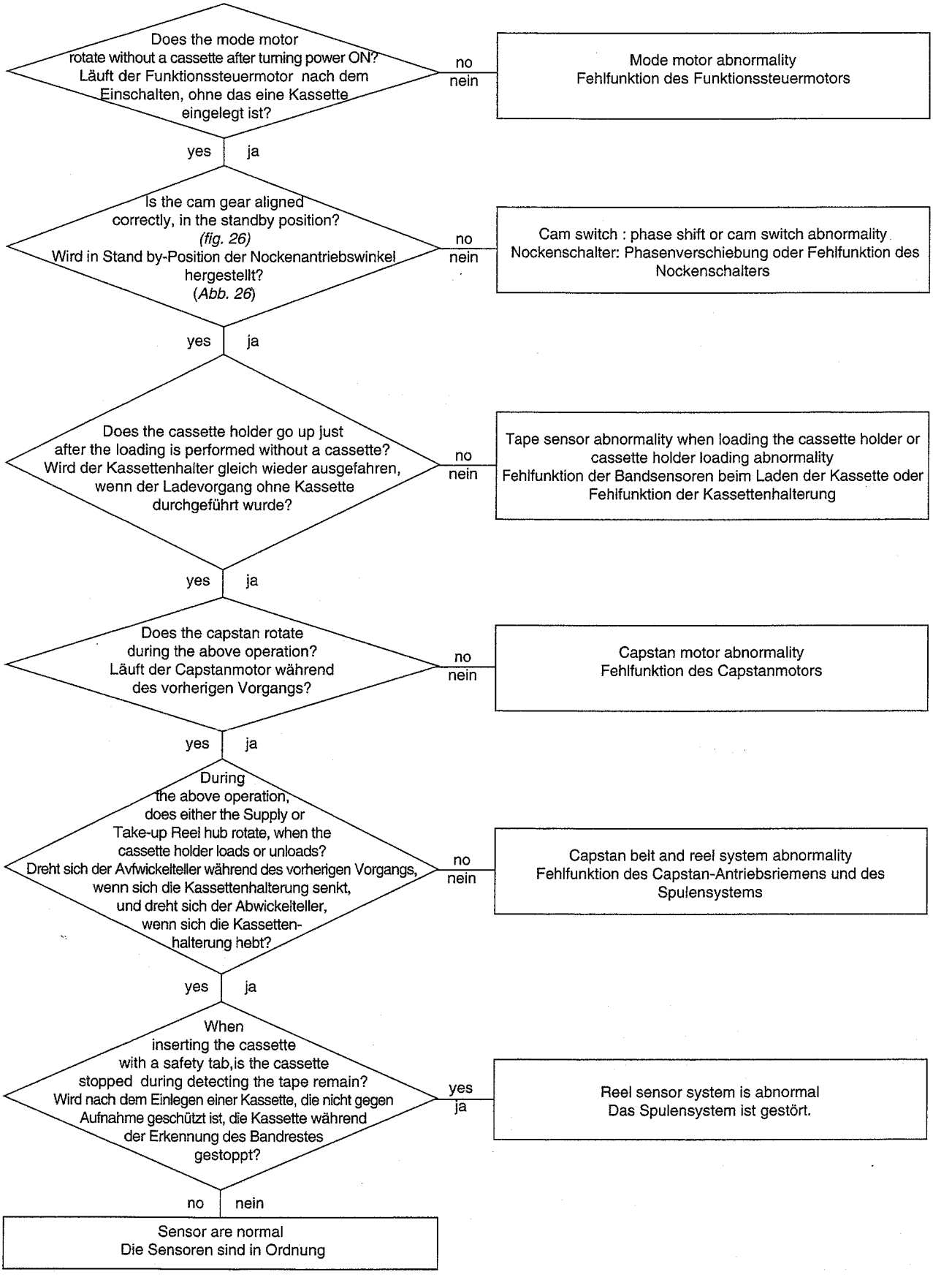
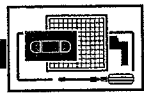


*fig. 26*


Does the mode motor rotate without a cassette after turning power ON? Läuft der Funktionssteuermotor nach dem Einschalten, ohne das eine Kassette eingelegt ist?
no nein
Mode motor abnormality Fehlfunktion des Funktionssteuermotors
yes ja
Is the cam gear aligned correctly, in the standby position? (fig. 26) Wird in Stand by-Position der Nockenantriebswinkel hergestellt? (Abb. 26)
no nein
Cam switch : phase shift or cam switch abnormality Nockenschalter: Phasenverschiebung oder Fehlfunktion des Nockenschalters
yes ja
Does the cassette holder go up just after the loading is performed without a cassette? Wird der Kassettenhalter gleich wieder ausgefahren, wenn der Ladevorgang ohne Kassette durchgeführt wurde?
no nein
Tape sensor abnormality when loading the cassette holder or cassette holder loading abnormality Fehlfunktion der Bandsensoren beim Laden der Kassette oder Fehlfunktion der Kassettenhalterung
yes ja
Does the capstan rotate during the above operation? Läuft der Capstanmotor während des vorherigen Vorgangs?
no nein
Capstan motor abnormality Fehlfunktion des Capstanmotors
yes ja
During the above operation, does either the Supply or Take-up Reel hub rotate, when the cassette holder loads or unloads? Dreht sich der Avfwickelteller während des vorherigen Vorgangs, wenn sich die Kassettenhalterung senkt, und dreht sich der Abwickelteller, wenn sich die Kassetten-halterung hebt?
no nein
Capstan belt and reel system abnormality Fehlfunktion des Capstan-Antriebsriemens und des Spulensystems
yes ja
When inserting the cassette with a safety tab,is the cassette stopped during detecting the tape remain? Wird nach dem Einlegen einer Kassette, die nicht gegen Aufnahme geschützt ist, die Kassette während der Erkennung des Bandrestes gestoppt?
yes ja
Reel sensor system is abnormal Das Spulensystem ist gestört.
no nein
Sensor are normal Die Sensoren sind in Ordnung



## 2 - CHECKLISTE FÜR DIE FEHLERSUCHE

## 2 - TROUBLESHOOTING CHECKLIST

| Case - Fall | Fault/symptom - Fehler/Symptom | Possible cause - mögliche Ursache | Check method - Überprüfung |
|---|---|---|---|
| 1 | • Power doesn't turn on.<br>Loading operation is defective.<br>Mode shift operation is defective.<br>• Das Gerät schaltet nicht ein.<br>Fehlerhafter Ladevorgang.<br>Fehlerhafter Umspringvorgang. | • Mechanism stops due to mechanical phase mismatch.<br>• blockierung aufgrund von Phasenverschiebung in der Mechanik | • Check mode shift "cassette out FF/REW position can be performed when turning worm wheel.<br>• Überprüfen, ob das Umspringen von FF auf REW möglich ist, wenn das Schneckenrad gedreht wird. |
| | • Loading operation is not performed<br>• Ladevorgang erfolgt nicht | • Loading motor doesn't rotate.(loading motor is defective or circuit is defective)<br>• Lademotor läuft nicht.<br>(Lademotorfehler, Schaltkreisfehler) | • Check loading motor whether it turns by the outer power supply (12,5V)<br>• Überprüfen, ob der Lademotor mit einem externen Netzteil läuft (12,5V) |
| | • Unloading operation is not performed<br>• Entladevorgang erfolgt nicht | • S reel does'nt wind the tape<br>• Der Abwickelteller spult nicht auf | • Refer to case 3 in this table.<br>• Siehe Fall 3. |
| 2 | • Playback operation is not performed<br>• Keine Wiedergabe | • Main brake is not released (ON)<br>T soft brake is not released (ON)<br>Idler does'nt swing<br>Pinch doesn't press<br>• Hauptbremse nicht gelöst (ON)<br>Aufrollhilfsbremse nicht gelöst (ON)<br>Zwischenrad ist blockiert.<br>Andruckrolle drückt nicht | • Check mechanical position as in playback mode<br>• Position der Mechanikteile überprüfen (Wiedergabe) |
| | | • Capstan motor doesn't rotate (capstan motor is defective or circuit is defective)<br>• Capstanmotor läuft nicht (Capstanmotor-, Schaltkreisfehler) | • Check capstan motor<br>• Capstanmotor überprüfen |
| | • Playback picture doesn't appear.<br>Video recording can't be performed<br>• Das Wiedergabebild erscheint nicht.<br>Videoaufzeichnung unmöglich | • In case of no mechanical problem:<br>Drum is defective.(circuit is defective)<br>• Falls kein Mechanikfehler vorliegt:<br>Kopftrommelfehler.(Fehler im Schaltkreis) | • Check drum assembly<br>• Kopftrommel überprüfen |
| 3 | • Playback interruption<br>• Wiedergabe unterbrochen | • Reel rotation detection is defective.<br>(sensor is defective, circuit is defective)<br>• Fehler in der Spulendrehungserkennung. (Sensorfehler, Schaltkreisfehler) | • Check sensor output<br>• Sensorenausgang überprüfen |
| | • Recording interruption<br>• Aufzeichnung unterbrochen | • Idler doesn't swing<br>• Zwischenrad ist blockiert. | • Check mechanical position as in Playback mode<br>• Position der Mechanikteile (Wiedergabe) überprüfen |
| | | • Reel belt is removed<br>• Spulenantriebsriemen fehlt | • Check the reel belt is removed or not<br>• Überprüfen, ob der Spulenantriebsriemen vorhanden ist |
| 4 | • FF operation is not performed.<br>FF operation is defective.<br>REW operation is not performed.<br>REW operation is defective.<br>Others : REV/FF is not performed.<br>Others : REV/FF is defective.<br>• Band wird nicht vorgespult.<br>Fehler beim schnellen Vorlauf.<br>Band wird nicht zurückgespult.<br>Fehler beim schnellen Rücklauf.<br>Andere : kein REV/FF.<br>Andere : kein REV/FF. | • Main brake is not released (ON)<br>T soft brake is not released (ON)<br>Idler does'nt swing<br>Pinch is not released<br>• Hauptbremse nicht gelöst (ON)<br>Aufrollhilfsbremse nicht gelöst (ON)<br>Zwischenrad ist blockiert.<br>Andruckrolle ist nicht gelöst | • Check mechanical position as in FF/REW mode<br>• Position der Mechanikteile (FF/REW) überprüfen |
| | | • Capstan motor doesn't rotate (capstan motor is defective or circuit is defective)<br>• Der Capstanmotor läuft nicht (Capstanmotorfehler oder Schaltkreisfehler) | • Check capstan motor<br>• Capstanmotor überprüfen |

| Case - Fall | Fault/symptom - Fehler/Symptom | Possible cause - mögliche Ursache | Check method - Überprüfung |
|---|---|---|---|
| 5 | • REVIEW is not performed | • Main brake is not released (ON)<br>T soft brake is not released (ON)<br>Idler does'nt swing<br>Pinch doesn't press | • Check mechanical position as in REVIEW mode |
| | • Kein REVIEW | • Hauptbremse nicht gelöst (ON)<br>Aufrollhilfsbremse nicht gelöst (ON)<br>Zwischenrad ist blockiert.<br>Andruckrolle drückt nicht | • Position der Mechanikteile (REVIEW) überprüfen |
| | | • Capstan motor doesn't rotate (capstan motor is defective or circuit is defective) | • Check capstan motor |
| | | • Capstanmotor läuft nicht (Fehler im Capstanmotor oder im Schaltkreis) | • Capstanmotor überprüfen |
| 6 | • Slot-in is not performed<br>Cassette can't be inserted | • When rod (24) is mounted on the mechanical deck, the position is not correct | • Check mechanical position shown in *(fig. 8)* |
| | • Kassette wird nicht eingezogen.<br>Kassette kann nicht eingelegt werden | • Dreieck (24) nicht in der richtigen Stellung auf dem Laufwerk angebracht | • In *(Abb. 8)* gezeigte Position der Mechanikteile überprüfen |
| 7 | • Capstan servo doesn't work<br>Capstan servo is uneven | • Capstan motor is defective | • Check capstan motor |
| | • Capstan-Servo funktioniert nicht<br>Capstan-Servo ungleichmässig | • Fehler im Capstanmotor | • Capstanmotor überprüfen |
| | • Tape speed is abnormal<br>FG pulse is not output | • Audio control head output is defective (circuit is defective) | • Check audio control head<br>Check control output |
| | • Bandgeschwindigkeit ist anormal<br>Keine FG-Pulsausgabe | • Fehler am Ton-/Kontrollkopfausgang (Schaltkreisfehler) | • Ton-/Kontrollkopf überprüfen<br>Kontrollausgang überprüfen |
| 8 | • Audio output doesn't come out<br>Audio output is small<br>Audio output variation is large<br>Audio output is uneven<br>Audio distortion | • Audio control head is defective | • Check audio control head<br>Check control output |
| | • Kein Ton<br>Ton leise<br>Starke Tonausgabeschwankung<br>unregelmässige Tonausgabe<br>Tonverzerrung | • Fehler im Ton-/Kontrollkopf | • Ton-/Kontrollkopf überprüfen<br>Kontrollausgang überprüfen |
| | | • Tape transport adjustment | • Perform tape transport adjustment again after confirming tape transport condition. |
| | | • Bandantriebseinstellung | • Bandantrieb nach Feststellung des Bandantriebszustands überprüfen |
| | • Audio noise<br>Others : Audio is defective | • Hi-fi head (drum) is defective (circuit is defective) | • Check drum. Check whether B+14V is supplied |
| | • Rauschen<br>Andere: fehlerhafte Tonausgabe | • Fehler im Hi-fi-Kopf (Trommel) (Schaltkreisfehler) | • Trommel überprüfen. Überprüfen, ob B+14V gespeist werden. |

Wird bei den oben beschriebenen Abläufen ein Fehler in der Mechanik festgestellt, muß folgendermaßen vorgegangen werden:
- Demontage, mechanische Phasenverschiebung: reparieren
- Teilefehler, Teileschaden: Teile auswechseln

Sollte die Mechanik keine Fehler aufweisen, Schaltkreise überprüfen.

If the mechanism is found out to be defective according to the procedures described above, perform the following :

- Disassembly, mechanical phase mismatch : repair correctly
- Part defect, part damage : replace parts

If the mechanismI is found not to be defective, check the circuits.

**Abbreviation list :**

| | |
|---|---|
| FF | Fast Forward |
| FG | Frequency Generator |
| REV/FF | Review |
| REW | Rewind |
| SU | Supply |
| TU | Take-up |
| UN-LO | Unload |

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